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FOR OFFICIAL USE

IONOSPHERIC DATA

ISSUED
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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, S, or T are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number									
	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945
December		15	33	53	86	108	114	126	85	38
November		16	38	52	87	112	115	124	83	36
October		17	43	52	90	114	116	119	81	23
September		18	46	54	91	115	117	121	79	22
August		18	49	57	96	111	123	122	77	20
July		20	51	60	101	108	125	116	73	
June		21	52	63	103	108	129	112	67	
May		22	52	68	102	108	130	109	67	
April	10	24	52	74	101	109	133	107	62	
March	11	27	52	78	103	111	133	105	51	
February	12	29	51	82	103	113	133	90	46	
January	14	30	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 48 and figures 1 to 96 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:

Brisbane, Australia
Canberra, Australia
Hobart, Tasmania
Townsville, Australia

British Department of Scientific and Industrial Research, Radio Research Board:

Falkland Is.
Inverness, Scotland
Khartoum, Sudan (University College of Khartoum)
Singapore, British Malaya
Slough, England

Defence Research Board, Canada:

Churchill, Canada

National Laboratory of Radio-Electricity (French Ionospheric Bureau):

Casablanca, Morocco
Poitiers, France

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:

Lindau/Harz, Germany

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:

Christchurch, New Zealand
Rarotonga, Cook Is.

National Bureau of Standards (Central Radio Propagation Laboratory):

Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 49 through 60 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 61 presents ionosphere character figures for Washington, D. C., during April 1954, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Tables 63a and 63b give for March 1954 the radio propagation quality figures for the North Atlantic area, the relevant CRPL advance and short-term forecasts, a summary geomagnetic activity index and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, Qa, separately for each 6-hour interval of the Greenwich day, viz., 00-06, 06-12, 12-18, 18-24 hours UT (Universal Time or GCT).
(b) whole-day radio quality indices (beginning October 1952). Each index is a weighted average of the four quarter-day Qa-figures, before rounding off, with half weight given to quality grades 5 and 6. This procedure tends to give whole-day indices suitable for comparison with whole-day advance forecasts which designate whenever possible the days when significant disturbance or unusually quiet conditions will occur.
(c) short-term forecasts, issued by CRPL every six hours (nominally one hour before 00^h, 06^h, 12^h, 18^h UT) and applicable to the period 1 to 13 (especially 1 to 7) hours ahead. Note that new scoring rules have been adopted beginning with October 1952 data.
(d) advance forecasts, issued semiweekly (CRPL-J reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole-day quality indices.
(e) half-day averages of the geomagnetic K indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey.
(f) illustration of the comparison of short-term forecasts with Qa-figures and also with estimates of radio quality based on CRPL observations only.
(g) illustration of the outcome of advance forecasts (1 to 3 or 4 days ahead) and, for comparison, the outcome of a type of "blind" forecast. For the latter the frequency for each quality grade, as determined from the distribution of quality grades in the four most recent months of the current season, is partitioned among the grades observed in the current month in proportion to the frequencies observed in the current month.

These radio propagation quality figures, Qa, are prepared from radio traffic data reported to CRPL by American Telephone and Telegraph Company, Mackay Radio and Telegraph Company, RCA Communications, Inc., Marconi Company, British Admiralty Signal and Radar Establishment, and the following agencies of the U. S. Government:--Coast Guard, Navy, Army Signal Corps, and U. S. Information Agency. The method of calculation, summarized below, is similar to that described in a 1946 report, IRPL-R31, now out of print. Only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality.

The original reports are submitted on various scales and for various time intervals. The observations for each 6-hour interval are averaged on the quality scale of the original reports. These 6-hour indices are then adjusted to the 1 to 9 quality-figure scale by a conversion table prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution determined from analysis of the reports originally made on the 1 to 9 quality-figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. The 6-hourly quality figures are (subjectively) weighted means of the reports received for that period. These 6-hourly quality figures replace, beginning January 1953, the half-daily quality figures which formerly appeared in this table. (These forecasts and quality indices are prepared by the North Atlantic Radio Warning Service, the CRPL forecasting center at Ft. Belvoir, Virginia.)

Table 62 gives for March 1954, the radio propagation quality figures for the North Pacific area, the relevant CRPL advance and short-term forecasts, and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, Qp, separately for each of three 9-hour intervals of the Greenwich day, viz., 03-12, 09-18 and 18-03 UT (Universal Time or GCT).
(b) whole-day radio quality indices for each Greenwich day. These are derived from the same basic data as the 9-hour indices, separately reduced.
(c) short-term forecasts, issued daily at 02, 09 and 18 hours UT.
(d) advance forecasts, issued semiweekly (CRPL-Jp reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole day quality indices.

These radio quality indices, Qp, refer to radio propagation on optimum frequencies over moderately long transmission paths in the North Pacific area. Typical paths are Anchorage (Alaska) to Seattle, or Anchorage to Tokyo. The indices are derived from reports submitted regularly by communications agencies of the U. S. Army and Air Force, and by Aeronautical Radio, Inc. The method of derivation of Qp differs from that of Qa. For Qp, each reported index is converted into a deviation (usually) from the 3-monthly mean for that index, in units of the standard deviation. These deviations are averaged for all reports for a given 9-hour period. The average is then put on the 1 to 9 Q-scale with an assumed standard deviation of 1.25 and assumed means of 5.33, 5.33, and 6.00, respectively, for the 03-12, 09-18 and 18-03 periods, and 5.67 for the whole day period. (These forecasts and quality indices are prepared by the North Pacific Radio Warning Service, the CRPL forecasting center at Anchorage, Alaska.)

These quality figures are, in effect, a consensus of reported radio propagation conditions. The reasons for low quality are not necessarily known and may not be limited to ionospheric storminess. For instance, low quality may result from improper frequency usage for the path and time of day. Although, wherever it is reported, frequency usage is included in the rating of reports, it must often be an assumption that the reports refer to optimum working frequencies. It is more difficult to eliminate from the indices conditions of low quality because of multipath, interference, etc. These considerations should be taken into account in interpreting research correlations between the Q-figures and solar, auroral, geomagnetic or similar indices.

OBSERVATIONS OF THE SOLAR CORONA

Tables 64 through 66 give the observations of the solar corona during April 1954, obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 67 through 69 list the coronal observations obtained at Sacramento Peak, New Mexico, during April 1954, derived by Harvard College Observatory as a part of its performance of a research contract with the Upper Air Research Observatory, Geophysical Research Directorate, Air Force Cambridge Research Center. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 64 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 65 gives similarly the intensities of the first red (6374A) coronal line; and table 66, the intensities of the second red (6702A) coronal line; all observed at Climax in April 1954.

Table 67 gives the intensities of the green (5303A) coronal line; table 68, the intensities of the first red (6374A) coronal line; and table 69, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in April 1954.

The following symbols are used in tables 64 through 69: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 70 lists the daily provisional Zürich relative sunspot number, R_Z, for April 1954, as communicated by the Swiss Federal Observatory. Table 71 contains the daily American relative sunspot number, R_A', for March 1954, as compiled by the Solar Division, American Association of Variable Star Observers.

OBSERVATIONS OF SOLAR FLARES

Table 72 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris) and the data are taken from the Paris-URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

INDICES OF GEOMAGNETIC ACTIVITY

Table 73 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity. The details of the currently used method follow. For each day of a month, its geomagnetic activity is assigned by weighting equally the following three criteria: (1) the sum of the eight Kp's; (2) the greatest Kp; and (3) the sum of the squares of the eight Kp's.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Kp is available from 1937 to date as noted in F108.

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

SUDDEN IONOSPHERE DISTURBANCES

It is hoped that the information scheduled for table 74 will be published in a future issue of the F series.

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.4						3.0
01	290	2.2						3.0
02	290	2.2						3.1
03	290	2.1						3.1
04	290	(1.9)						(3.1)
05	280	2.2						3.2
06	260	3.2	230	---	130	1.7		3.3
07	300	3.8	220	3.4	110	2.1	2.2	3.2
08	340	4.4	210	3.7	110	2.4	2.9	3.1
09	340	4.6	210	3.9	110	2.7	2.8	3.2
10	390	4.8	200	4.0	110	2.9	3.2	3.0
11	400	4.9	200	4.1	100	3.0	3.2	3.0
12	370	5.0	200	4.2	100	3.1	3.2	3.0
13	350	5.2	210	4.1	100	3.1		3.0
14	360	5.3	210	4.1	110	3.0	2.0	3.0
15	330	5.2	220	3.9	110	2.9		3.0
16	310	5.1	220	3.8	110	2.6		3.2
17	300	4.8	230	3.4	110	2.2		3.2
18	270	4.9	240	---	(120)	1.7		3.2
19	240	4.8						3.2
20	240	4.8						3.2
21	250	3.6						3.2
22	270	2.9						3.0
23	290	2.5						3.0

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2*

Inverness, Scotland (57.4°N, 4.2°W) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.7						2.9
01	290	2.6					2.2	2.9
02	295	2.3					2.2	2.8
03	320	2.0					1.9	2.8
04	295	(2.2)					2.7	2.8
05	290	3.0	275	2.4	135	1.5	2.5	3.1
06	(300)	2.6	240	3.0	130	1.8	2.8	2.1
07	380	3.8	225	3.4	115	2.1	2.8	3.1
08	290	4.0	215	3.6	110	2.4	2.8	3.0
09	290	4.2	210	3.8	110	2.6	2.9	3.1
10	425	4.4	210	3.9	105	2.8	3.0	3.1
11	420	4.4	200	4.0	105	2.8	3.1	2.9
12	425	4.4	210	4.1	100	2.9	3.2	3.0
13	415	4.5	205	4.1	105	2.9	3.0	2.9
14	420	4.4	210	4.0	105	2.9	2.9	2.9
15	425	4.4	220	4.0	105	2.8	2.8	2.9
16	390	4.4	225	3.8	110	2.6	3.0	2.9
17	365	4.5	230	3.7	110	2.4	3.0	2.9
18	315	4.6	240	3.4	125	2.1	3.0	3.0
19	280	4.6	245	3.1	135	1.7	3.0	3.1
20	255	4.8					1.9	3.1
21	260	4.8						3.0
22	275	4.2						3.0
23	295	3.3						3.0

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 3*

Slough, England (51.5°N, 0.5°W) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2					2.6	2.9
01	280	2.9					3.1	2.8
02	280	2.5					3.8	2.8
03	290	2.5					4.1	2.8
04	290	2.4					4.2	2.8
05	300	2.2	(250)	(2.8)	(130)	(1.5)	3.9	3.0
06	310	3.9	235	3.3	125	2.0	3.2	3.1
07	355	4.2	235	3.6	120	2.2	4.2	3.2
08	365	4.5	230	3.8	115	2.6	4.7	2.2
09	410	4.7	220	4.0	115	2.8	4.7	3.2
10	380	4.7	215	4.1	115	2.9	4.7	2.2
11	365	4.8	215	4.2	115	2.0	4.5	3.2
12	400	4.9	220	4.2	115	3.1	4.6	2.2
13	420	4.7	220	4.2	115	3.1	4.7	3.1
14	415	4.7	220	4.2	115	3.1	4.4	3.2
15	380	4.7	220	4.1	115	2.9	4.4	3.0
16	385	4.5	235	4.0	115	2.8	4.4	3.0
17	340	4.8	240	3.7	115	2.4	4.4	3.0
18	315	5.0	250	3.4	120	2.0	4.5	3.0
19	280	5.5			(125)	(1.8)	4.7	3.0
20	255	5.6					4.3	3.0
21	255	5.1					3.7	3.0
22	255	4.4					4.2	3.0
23	270	3.7					2.9	2.9

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 4*

Khartoum, Sudan (15.6°N, 32.8°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	(2.7)					3.1	
01	360	(2.8)					3.1	
02	340	(2.8)					3.1	
03	300	(2.7)					3.1	
04	280	(2.5)					3.1	
05	260	(2.0)					4.0	(2.2)
06	235	4.9			160	1.9	4.0	2.3
07	245	6.0	215	2.8		2.6	5.9	2.3
08	280	6.4	220	4.1		3.0	5.8	3.2
09	335	6.4	220	4.3	(140)	3.2	5.4	2.9
10	370	6.9	220	4.4	125	3.4	5.9	2.6
11	410	7.5	210	4.5	(120)	3.5	5.2	2.5
12	400	7.7	210	4.4	(130)	3.6	4.2	2.4
13	395	8.3	220	4.4	125	3.8	4.4	2.5
14	380	8.8	220	4.3	125	3.4	4.0	2.5
15	355	9.0	225	4.1		3.2	5.9	2.7
16	340	9.7	225	4.0		2.8	6.7	2.8
17	310	10.0		3.8		(2.2)	7.0	2.9
18	250	10.9					6.0	3.1
19	225	9.0					4.0	3.2
20	245	6.9					4.3	3.0
21	240	5.7					3.4	2.9
22	305	4.5					3.1	2.7
23	345	3.8					3.1	2.6

Time: 30.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 5*

Singapore, British Malaya (1.3°N, 103.8°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.7					4.0	3.0
01	250	3.7					4.2	3.0
02	245	3.1					3.2	(3.1)
03	255	2.6					3.7	(3.2)
04	245	2.4					3.6	3.3
05	(250)	2.0					3.8	(2.3)
06	270	2.9					3.4	3.1
07	250	5.0	235		125	2.2	3.8	3.1
08	300	7.5	220	4.1	120	2.8	5.7	2.9
09	330	8.5	215	4.4	110	3.1	5.7	2.7
10	335	9.1	205	4.4	110	3.3	6.1	2.6
11	345	9.3	200	4.5	110	3.4	6.0	2.5
12	345	9.2	200	4.5	110	3.5	5.1	2.5
13	340	9.2	200	4.5	110	3.4	5.7	2.8
14	350	9.2	200	4.4	110	3.3	5.7	2.5
15	325	9.2	205	4.3	110	3.2	5.6	2.8
16	315	9.1	215	4.2	115	2.8	5.2	2.6
17	280	9.0	230		125	2.3	4.4	2.6
18	250	9.0				1.5	4.2	2.7
19	245	8.7					3.3	2.9
20	235	8.4					3.3	3.1
21	225	7.0					3.8	3.3
22	225	5.4					4.3	3.3
23	230	4.8					3.9	3.2

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 6

Rarotonga I. (21.3°S, 159.8°W) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.1					2.5	3.0
01	290	3.2					2.5	2.9
02	290	3.3					2.8	3.0
03	250	3.3					2.5	3.2
04	260	2.8					2.5	3.1
05	270	2.4					2.2	3.1
06	310	2.4					2.4	3.0
07	250	4.5	---	2.0			2.6	3.4
08	250	5.5	210	2.9	120	2.3	3.0	3.4
09	300	5.1	210	4.0	110	2.7	3.5	3.3
10	270	6.8	210	4.2	110	3.0	3.7	3.4
11	270	6.5	210	4.3	110	3.1	4.0	3.5
12	290	6.3	200	4.3	110	3.2	4.1	3.4
13	270	6.0	200	4.4	105	3.2	4.5	3.5
14	300	5.8	200	4.3	105	3.1	4.5	3.2
15	280	5.9	200	4.1	110	3.0	4.3	3.3
16	270	5.9	200	3.7	115	2.7	4.7	3.2
17	250	5.4	240	2.6	---	2.2	4.0	3.3
18	250	5.5					3.3	3.3
19	250	5.1					3.4	3.1
20	240	4.8					3.0	3.1
21	280	3.8					2.9	3.0
22	270	3.6					2.5	3.0
23	270	3.2					2.5	3.0

Time: 157.5°W.
Sweep: 2.0 Mc to 15.0 Mc, manual operation.

Table 7

Christchurch, New Zealand (43.6°S, 172.7°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.1					3.4	3.0
01	280	2.3					3.0	3.0
02	270	2.4					3.8	3.1
03	270	2.1					3.2	3.0
04	260	1.8					4.0	3.1
05	250	1.7					3.4	3.2
06	260	1.7					4.1	3.1
07	250	3.0				1.6	3.7	3.4
08	240	3.8	240	2.9		1.9		3.5
09	260	4.2	230	3.5		2.3	4.2	3.4
10	280	4.5	220	3.7		2.6	4.3	3.3
11	320	4.7	220	3.9		2.7	4.3	3.3
12	310	5.0	220	3.9		2.8	4.3	3.3
13	300	5.0	230	3.9		2.7	4.3	3.3
14	300	5.0	230	3.8		2.6	4.3	3.3
15	280	4.9	220	3.6		2.4	4.2	3.4
16	260	4.7	240	3.2		2.0	3.8	3.4
17	240	4.3	230	2.2		1.6	2.0	3.4
18	240	3.4						3.1
19	260	3.2						3.1
20	270	2.7						3.1
21	280	2.4					1.7	3.0
22	280	2.3						3.0
23	280	2.2					2.2	3.0

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 8*

Falkland Is. (51.7°S, 57.8°W) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.6					2.0	2.9
01	290	2.5					1.8	2.9
02	290	2.5						2.9
03	275	2.4					1.1	3.0
04	255	2.4					0.9	3.2
05	220	2.3					2.1	3.4
06	230	1.9			180	(1.1)	1.4	3.5
07	235	3.3			170	1.5	1.7	3.4
08	225	4.3			140	2.1	2.5	3.6
09	230	4.7	220		125	2.3	4.4	3.7
10	235	5.0	220	(3.8)	120	2.5	4.8	3.6
11	240	5.2	220	3.7	120	2.6	5.0	3.5
12	250	5.7	220	3.8	115	2.7	5.0	3.6
13	245	5.5	215	3.7	115	2.7	4.6	3.5
14	240	5.1	210	3.4	120	2.5	3.8	3.6
15	230	5.2	205	3.0	125	2.3	3.1	3.7
16	225	4.9	(210)		155	2.0	3.1	3.6
17	215	4.1					3.1	3.6
18	230	3.0					3.1	3.3
19	240	2.7					2.8	3.2
20	255	2.4					3.0	3.2
21	260	2.5					2.9	3.1
22	285	2.6					2.8	2.9
23	290	2.6					2.1	2.9

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 9

Churchill, Canada (58.8°N, 94.2°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.5			---	---	8.0	---
01	280	3.5			100	2.3	6.2	(3.0)
02	300	3.4			110	2.2	7.0	(3.0)
03	300	3.2			100	2.0	6.0	3.0
04	280	3.4	---	---	100	2.0	4.2	3.0
05	300	3.6	220	3.0	100	2.4	5.0	2.8
06	490	(3.6)	260	< 3.6	100	3.2	3.0	G
07	G	< 3.9	210	< 3.8	100	3.4	3.6	G
08	540	4.0	210	3.9	100	3.3	5.6	2.2
09	G	< 4.0	210	< 4.0	100	3.3	7.0	G
10	630	< 4.0	210	4.0	100	3.1	6.0	2.4
11	420	< 4.1	200	4.0	100	3.1	4.5	2.4
12	620	4.0	210	4.0	100	3.2	7.5	2.3
13	500	4.2	200	4.0	100	3.2	7.5	2.5
14	440	4.4	210	4.0	100	3.1		2.6
15	400	4.6	220	4.0	100	3.0		2.8
16	380	4.6	220	3.9	100	3.0		2.8
17	390	4.5	220	3.8	100	2.8		2.8
18	370	4.3	230	3.7	110	2.9		2.8
19	340	4.2	240	3.5	110	2.8		2.9
20	300	3.9	---	---	110	2.7	5.2	3.0
21	300	3.8			110	2.5	7.0	3.0
22	300	3.6			120	2.2	9.0	3.0
23	300	3.2			---	---	>10.0	(2.9)

Time: 90.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 16 seconds.

Table 10*

Inverness, Scotland (57.4°N, 4.2°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	(3.2)					2.3	2.8
01	280	(2.6)					2.7	(2.9)
02	275	(2.5)					2.6	(2.9)
03	280	(2.5)					2.5	3.0
04	(290)	(3.0)	255	2.5	(145)	(1.5)	3.0	3.0
05	355	3.4	240	2.9	125	1.8	2.9	3.0
06	385	3.5	225	3.3	115	2.1	3.1	2.9
07	460	3.8	215	3.5	110	2.3	3.4	(3.0)
08	410	4.2	220	3.7	105	2.6	3.8	2.9
09	430	4.3	210	3.9	105	2.7	4.2	2.9
10	405	4.4	215	4.0	100	2.8	4.4	2.8
11	445	4.6	215	4.0	105	2.9	4.2	2.8
12	410	4.6	210	4.1	100	2.9	3.4	2.9
13	435	4.6	210	4.1	100	3.0	3.4	2.9
14	455	4.4	210	4.0	100	3.0	3.3	2.9
15	465	4.3	215	4.0	105	2.9	3.4	2.8
16	410	4.4	215	3.9	105	2.8	3.3	2.8
17	395	4.4	220	3.8	105	2.5	4.0	2.8
18	360	4.5	230	3.6	115	2.3	3.8	2.9
19	315	4.5	240	3.3	125	1.9	2.9	3.0
20	275	4.6	245	2.9	150	1.7	2.9	3.1
21	250	4.5					2.1	3.1
22	250	4.2					2.1	3.0
23	265	(3.7)					2.4	2.9

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 11

Lindau/Harz, Germany (51.6°N, 10.1°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.8					2.3	3.1
01	260	3.6					2.3	3.1
02	260	3.2					2.8	3.1
03	260	2.8					2.2	3.1
04	270	2.8	250	---	---	E	2.6	3.2
05	300	3.5	230	2.8	---	E	3.0	3.2
06	320	3.8	225	3.3	115	2.0	3.6	3.2
07	425	4.2	220	3.6	105	2.4	3.8	3.0
08	415	4.3	220	3.8	100	2.6	4.3	3.1
09	410	4.5	200	3.9	100	2.8	5.0	2.9
10	360	4.8	210	4.0	100	2.9	5.0	3.1
11	360	4.9	200	4.1	100	3.0	4.9	3.1
12	390	4.8	210	4.2	100	3.0	3.8	3.0
13	365	4.8	210	4.2	100	3.0	4.4	3.0
14	405	4.6	215	4.2	100	3.0	4.5	2.9
15	365	4.6	210	4.1	100	3.0	3.6	3.1
16	390	4.4	210	4.0	100	2.8	4.3	2.9
17	355	4.6	215	3.8	100	2.6	3.6	3.1
18	325	4.6	220	3.6	105	2.3	4.6	3.1
19	280	4.8	225	3.1	120	1.9	3.7	3.2
20	250	5.2	230	---	---	E	3.2	3.3
21	240	5.2					3.8	3.2
22	240	4.9					3.4	3.2
23	250	4.2					2.4	3.1

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 12*

Slough, England (51.5°N, 0.6°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.7					2.6	2.9
01	275	3.4					3.0	2.9
02	275	3.1					3.2	2.9
03	285	2.8					4.1	2.9
04	290	3.0					4.1	2.9
05	370	3.6	250	3.0	125	1.7	4.4	3.0
06	410	4.0	240	3.4	120	2.1	4.2	3.0
07	415	4.2	225	3.7	115	2.4	4.8	3.0
08	400	4.4	230	3.9	115	2.7	4.9	3.1
09	430	4.6	235	4.0	115	2.9	4.9	3.0
10	455	4.7	220	4.1	110	3.0	5.3	3.0
11	395	4.8	225	4.2	110	3.0	4.7	3.0
12	410	4.7	235	4.2	115	3.1	4.9	3.0
13	440	4.8	230	4.2	115	3.1	5.3	3.0
14	430	4.7	230	4.2	115	3.1	5.0	3.2
15	415	4.6	215	4.1	115	3.0	5.2	3.0
16	400	4.7	230	4.0	115	2.8	4.8	3.0
17	375	4.6	235	3.8	115	2.6	4.7	3.0
18	340	4.8	245	3.6	120	2.2	4.9	3.0
19	290	5.0	245	3.1	130	1.9	4.7	3.0
20	260	5.1					4.1	3.0
21	245	5.3					3.2	3.1
22	255	4.8					3.6	3.0
23	265	4.2					2.6	2.9

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 13*

Singapore, British Malaya (1.3°N, 103.8°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.0					4.8	3.0
01	270	3.5					4.2	(3.2)
02	255	3.0					3.9	(3.3)
03	245	2.5					3.7	---
04	240	2.3					4.0	---
05	(245)	2.3					4.4	---
06	250	2.9					4.8	3.2
07	250	5.6			(125)	3.1	4.6	3.2
08	290	6.9	225	4.1	120	2.7	5.9	3.1
09	330	7.7	210	4.3	115	3.0	6.0	2.8
10	340	8.8	205	4.3	110	3.2	8.7	2.7
11	350	9.0	200	4.4	110	3.3	8.7	2.6
12	360	9.1	200	4.4	110	3.4	6.7	2.5
13	365	8.9	200	4.4	110	3.4	6.3	2.5
14	350	9.1	200	4.3	110	3.3	6.0	2.5
15	335	8.6	205	4.2	110	3.1	5.2	2.6
16	315	8.5	215	4.1	115	2.8	4.3	2.6
17	275	8.3	225		120	2.3	3.8	2.8
18	245	8.0					3.9	2.9
19	235	8.0					3.5	3.1
20	225	7.2					3.7	3.3
21	215	5.4					3.7	3.5
22	225	4.3					4.1	3.3
23	245	3.5					4.7	3.0

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 14

Rarotonga I. (21.3°S, 159.8°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 290	2.9						2.9
01	250	3.0						2.9
02	250	3.0						3.0
03	250	3.1					2.4	3.2
04	240	2.9					2.3	3.2
05	(240)	2.4					2.4	3.0
06	270	2.3					2.4	3.0
07	250	4.0	---	< 1.7			2.6	3.3
08	250	5.2	200	2.8	120	2.1	3.1	3.5
09	280	5.3	200	3.9	110	2.5	3.4	3.3
10	270	6.2	200	4.0	110	2.8	3.9	3.5
11	270	5.9	200	4.2	110	2.9	4.1	3.5
12	280	5.6	200	4.2	110	3.0	4.1	3.5
13	290	5.7	200	4.2	110	3.0	4.0	3.4
14	290	5.6	200	4.1	110	2.9	4.1	3.3
15	290	5.8	200	4.0	110	2.8	3.9	3.4
16	260	5.6	220	3.6	115	2.5	4.1	3.4
17	250	5.6	---	2.4	---	2.0	3.9	3.3
18	240	5.3					3.3	3.4
19	230	4.4					3.2	3.2
20	250	3.2					2.8	3.0
21	260	3.0					2.4	3.0
22	270	2.9					2.3	3.0
23	270	3.1					2.2	3.1

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc, manual operation.

Table 15

Christchurch, New Zealand (43.6°S, 172.7°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.2					3.0	3.0
01	280	2.1					4.0	3.1
02	270	2.1					2.8	3.1
03	260	2.0					3.6	3.2
04	260	1.6					3.9	3.2
05	240	1.5					3.4	3.3
06	---	1.5					4.0	3.1
07	270	2.0				---	4.0	3.2
08	240	3.4	240	---		1.6	2.2	3.5
09	250	4.0	230	3.0		2.0	4.3	3.5
10	250	4.3	220	3.4		2.3	4.2	3.4
11	280	4.6	220	3.7		2.5	4.3	3.4
12	280	4.9	230	3.7		2.6	4.3	3.4
13	280	4.9	220	3.7		2.5	4.3	3.4
14	270	4.9	240	3.6		2.4	4.3	3.4
15	260	4.7	230	3.3		2.1	4.3	3.5
16	240	4.4	240	2.7		1.7	3.9	3.5
17	240	3.5				---	3.5	3.3
18	260	2.8					2.9	3.1
19	260	2.4					2.4	3.1
20	270	2.3					3.5	3.1
21	270	2.2					2.1	3.1
22	280	2.1					3.5	3.0
23	280	2.1					2.7	3.0

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 16*

Falkland Is. (51.7°S, 57.8°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4						2.9
01	290	2.4					1.4	3.0
02	275	2.3						3.0
03	280	2.3						3.0
04	265	2.2						3.1
05	240	2.2					1.6	(3.3)
06	210	2.0					1.7	(3.7)
07	235	1.8			165	1.2	1.5	(3.2)
08	225	3.3			160	1.7	2.7	3.5
09	220	4.0			135		3.8	3.7
10	220	4.4			125		4.7	3.8
11	230	4.9			125		3.4	3.6
12	240	5.0	205	(3.4)	120	2.3	3.7	3.6
13	225	5.1	(220)	(3.2)	125	2.3	3.4	3.7
14	230	4.9	210		(125)	(2.1)	2.8	3.7
15	220	4.9			(155)	(2.1)	3.4	3.7
16	210	3.9			160	1.5	3.1	3.8
17	225	2.9					2.8	3.4
18	250	2.6					2.8	3.3
19	250	2.5					3.0	3.3
20	240	2.4					3.0	3.2
21	260	2.2					3.1	3.1
22	280	2.3					3.0	3.0
23	295	2.4					2.8	2.9

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 17*

Inverness, Scotland (57.4°N, 4.2°W) June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	3.9					1.6	2.9
01	260	3.5					2.4	2.9
02	265	3.2					2.5	2.9
03	280	3.0					2.4	2.9
04	300	3.5	255	2.7	145	1.5	2.8	2.9
05	365	3.9	235	3.1	120	1.8	3.0	3.0
06	370	4.2	215	2.5	110	2.1	3.1	2.9
07	380	4.3	215	3.8	105	2.5	3.7	3.0
08	410	4.5	210	3.9	100	2.7	3.2	3.0
09	415	4.8	205	4.0	100	2.8	3.8	2.9
10	420	4.9	210	4.1	100	2.9	3.3	2.9
11	400	4.8	210	4.2	100	3.0	3.6	2.9
12	375	4.9	215	4.2	100	3.0	4.0	2.9
13	410	4.7	210	4.2	100	3.0	4.0	2.9
14	435	4.7	210	4.2	100	2.9	3.4	2.9
15	405	4.8	210	4.1	100	2.9	3.3	2.8
16	375	4.8	220	4.0	105	2.9	3.3	2.9
17	380	4.8	220	3.9	100	2.6	3.8	3.0
18	340	5.0	220	3.7	110	2.4	3.2	3.0
19	310	5.1	235	3.4	120	2.0	2.8	3.1
20	275	5.2	245	2.9	145	1.7	2.7	3.1
21	260	5.0					1.7	3.1
22	250	4.9						3.0
23	260	4.6						3.0

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 18*

Slough, England (51.5°N, 0.6°W) June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.4					2.6	2.9
01	275	4.0					2.9	2.8
02	285	3.7					3.6	2.8
03	275	3.4					3.8	2.8
04	265	3.5			(125)	(1.4)	4.0	3.0
05	320	4.1	240	3.2	120	1.8	4.6	3.0
06	360	4.2	235	3.3	115	2.3	4.2	3.0
07	395	4.6	235	3.9	110	2.6	5.0	2.9
08	365	4.9	220	4.0	110	2.8	5.0	3.0
09	385	4.9	235	4.2	110	3.0	5.9	3.0
10	380	5.2	235	4.2	105	3.1	5.6	3.0
11	380	5.2	230	4.3	110	3.1	5.2	3.0
12	395	5.0	230	4.3	110	3.2	5.8	2.9
13	425	4.9	240	4.3	110	3.2	5.4	2.8
14	430	4.9	230	4.3	110	3.1	5.0	2.8
15	395	5.0	230	4.2	110	3.0	5.4	2.9
16	355	5.1	235	4.1	110	2.9	4.9	3.0
17	350	5.2	230	3.9	110	2.7	4.8	3.0
18	320	5.4	245	3.6	115	2.3	4.6	3.0
19	295	5.7	255	3.2	125	1.9	4.4	3.0
20	265	6.2	(255)	(2.5)			3.6	3.1
21	255	6.1					3.0	3.1
22	250	5.4					3.4	3.0
23	275	4.8					3.0	3.0

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 19*

Singapore, British Malaya (1.3°N, 103.8°E) — June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	3.3					3.9	3.0
01	245	3.9					4.8	(3.1)
02	235	3.0					4.3	(3.3)
03	245	2.4					3.5	(3.5)
04	240	2.2					3.4	(3.3)
05	260	1.7					3.8	—
06	260	3.4			(160)	(1.2)	3.5	3.2
07	260	6.0	235		120	2.2	5.2	3.1
08	300	7.6	225	4.2	115	2.7	5.4	2.9
09	310	8.4	215	4.3		3.0	5.4	2.8
10	330	9.4	205	4.4		3.3	8.7	2.6
11	345	9.5	200	4.4		3.4	8.7	2.5
12	360	9.2	200	4.4		3.4	5.9	2.5
13	345	9.1	200	4.4		3.4	5.8	2.5
14	335	9.0	205	4.4		3.3	5.9	2.6
15	325	8.8	210	4.3	115	3.1	5.5	2.7
16	290	8.8	215	4.2	115	2.7	5.2	2.9
17	255	8.6	230		120	2.2	5.4	3.0
18	230	8.3			(140)	(1.5)	4.4	3.1
19	225	7.6					3.8	3.2
20	220	6.1					3.8	3.4
21	220	5.0					4.1	3.4
22	225	3.8					4.8	3.3
23	255	3.6					4.4	3.0

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 20

Townsville, Australia (19.3°S, 146.8°E) — June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	(3.0)						(3.0)
01	220	(3.0)						(3.1)
02	220	3.0						(3.2)
03	200	(3.0)					1.8	(3.4)
04	200	(3.0)						(3.2)
05	200	(2.8)					2.0	(3.2)
06	200	3.0						3.2
07	220	4.4			130	1.8	3.2	3.5
08	220	5.5	—	—	100	2.3	3.6	3.4
09	250	5.9	220	4.0	110	2.7	4.0	3.4
10	250	6.5	210	4.1	110	3.0	4.4	3.4
11	250	8.5	220	4.3	120	3.2	4.3	3.4
12	270	8.1	200	4.3	110	3.2	4.0	3.3
13	270	8.4	210	4.2	110	3.2	4.5	3.2
14	260	6.5	220	4.2	110	3.0	4.8	3.4
15	250	6.0	200	4.0	120	3.0	4.4	3.4
16	240	5.8	220	—	110	2.4	4.2	3.4
17	220	5.6	—	—	—	2.0	3.8	3.4
18	210	4.8					3.7	3.4
19	230	3.7					3.5	3.3
20	230	3.2					3.4	3.1
21	230	3.4					2.5	3.1
22	240	3.0						3.0
23	230	3.0						3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 21

Canberra, Australia (35.3°S, 149.0°E) — June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	—	3.6						3.2
01	—	3.7					2.8	3.2
02	—	3.8					2.5	3.2
03	(240)	3.8					2.8	3.2
04	(240)	3.7					2.2	3.2
05	(200)	3.7					2.5	3.4
06	(200)	3.1					2.7	3.4
07	210	3.5					2.8	3.5
08	210	4.8			—	(1.8)	3.2	3.7
09	230	5.2	220	3.4	110	(2.2)	3.0	3.7
10	240	5.3	200	(3.8)	100	2.6	3.4	3.6
11	250	5.7	210	4.0	100	2.8	3.5	3.6
12	240	5.5	210	4.0	100	2.9	3.5	3.8
13	260	5.8	200	4.0	100	2.8	3.5	3.5
14	250	5.8	200	3.8	100	2.7	3.5	3.5
15	240	6.0	210	(3.6)	100	2.4	3.5	3.6
16	220	5.6	220	—	—	(1.8)	3.3	3.8
17	210	5.2					3.4	3.8
18	200	3.9					3.2	3.4
19	—	3.4					3.2	3.4
20	—	3.2					3.0	3.4
21	—	3.5					2.8	3.4
22	—	3.2					2.8	3.3
23	—	3.5					2.4	3.2

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 22

Hobart, Tasmania (42.9°S, 147.3°E) — June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.0						3.0
01	270	2.1						3.0
02	270	2.3						2.9
03	260	2.3						3.0
04	260	2.0						3.0
05	250	2.1						3.0
06	250	2.0						3.0
07	260	2.0						3.0
08	230	3.8			120	1.6		3.2
09	210	4.5			100	2.2		3.2
10	210	5.0			100	2.4		3.2
11	200	5.0			100	2.5		3.1
12	200	5.3			100	2.8		3.1
13	200	5.5			100	2.6		3.1
14	200	5.8			100	2.5		3.2
15	210	5.5			100	2.2		3.1
16	220	5.5			120	1.8		3.1
17	210	4.2						3.1
18	220	3.5						3.1
19	250	2.8						3.0
20	250	2.5						3.0
21	250	2.2						3.0
22	270	2.0						3.0
23	270	2.0						3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 23*

Falkland Is. (51.7°S, 57.8°W) — June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4						2.8
01	290	2.5						2.9
02	290	2.4						2.9
03	275	2.4						3.0
04	260	2.4						3.1
05	245	2.3					1.0	3.2
06	230	2.2					2.5	3.8
07	245	1.9			170	1.1	1.8	3.4
08	220	3.4			160	1.6	2.8	3.6
09	210	4.0			130	(1.9)	3.0	3.8
10	220	4.6			120	(2.1)	3.8	3.7
11	220	4.6			120	2.3	4.2	3.8
12	225	5.0	(300)		120	2.4	3.0	3.7
13	225	5.2	(315)	(3.3)	125	(2.4)	3.0	3.7
14	220	5.1			130	2.2	3.0	3.7
15	220	4.6			160	1.9	2.7	3.7
16	215	3.9					2.7	3.7
17	235	2.8					2.0	3.3
18	240	2.4					2.5	3.2
19	255	2.3					2.5	3.2
20	250	2.4					2.8	3.2
21	260	2.4					3.5	3.1
22	270	2.4					3.8	3.0
23	290	2.4					2.8	2.9

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 24

Ohurchill, Canada (58.8°N, 94.2°W) — May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.3			—	—	9.0	—
01	280	3.0			—	—	9.0	—
02	280	3.0			—	—	6.5	—
03	300	3.2			—	—	6.0	—
04	300	3.6			100	2.5	5.3	(2.9)
05	280	3.6	—	—	110	2.8	5.5	—
06	350	<3.8	270	3.7	100	3.2	6.0	0
07	410	<4.0	250	3.8	100	3.4	7.0	0
08	485	<4.0	250	3.9	100	3.4	9.0	0
09	480	4.1	230	4.0	100	3.4	7.8	2.6
10	0	4.2	210	<4.0	100	3.1	7.8	0
11	500	4.1	210	4.0	100	3.0	7.5	2.5
12	500	4.2	210	4.0	100	3.1	7.0	2.4
13	440	4.4	210	4.0	100	3.1	7.0	2.6
14	430	4.5	220	4.0	100	3.2	5.2	2.8
15	390	4.9	220	4.0	100	3.0	5.0	2.8
16	370	4.8	220	4.0	100	3.0	4.5	3.0
17	350	4.8	230	3.6	110	2.8		3.0
18	340	4.5	240	3.8	110	2.9	3.0	2.9
19	320	4.2	240	3.2	110	2.6		3.0
20	310	4.0			110	2.6	5.3	3.1
21	300	3.7			120	2.9	6.0	(3.0)
22	280	3.8			120	(2.4)	>10.0	—
23	280	3.9			—	—	>10.0	—

Time: 90.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 25*

Inverness, Scotland (57.5°N, 4.2°W) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	4.0						2.9
01	286	3.8					1.7	2.8
02	300	2.3					3.3	2.8
03	295	2.8					1.1	2.8
04	290	3.7					2.3	2.9
05	300	3.4	240	3.9	140	1.7	2.8	3.1
06	365	4.7	230	3.3	115	2.1	2.9	2.9
07	360	4.4	220	3.6	110	2.3	3.0	2.9
08	405	4.4	215	3.7	105	2.6	3.0	3.0
09	385	4.7	215	3.9	105	2.7	3.0	3.0
10	405	4.7	210	4.0	105	2.8	3.1	2.9
11	390	4.8	215	4.1	100	2.9	3.1	3.0
12	390	4.6	220	4.2	105	2.9	3.1	3.0
13	420	4.7	215	4.2	105	3.0	3.1	2.8
14	420	4.7	210	4.1	100	2.9	3.0	2.9
15	405	4.8	220	4.1	105	2.9	3.1	2.8
16	390	4.9	225	3.9	105	2.7	3.0	2.8
17	330	5.1	225	3.8	110	3.5	2.8	3.0
18	305	5.0	235	3.8	110	3.3	2.6	3.1
19	290	5.0	240	3.0	140	1.9	2.6	3.1
20	265	4.8	255	2.6	155	1.7	2.0	3.1
21	255	4.7					2.1	3.1
22	260	4.8					3.3	3.0
23	275	3.5					2.3	3.0

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 26*

Slough, England (51.5°N, 0.6°W) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	3.6					3.4	2.8
01	275	3.4					2.5	2.8
02	280	3.1					2.7	2.8
03	275	2.9					3.0	2.8
04	280	3.1					4.0	3.0
05	290	3.6	240	3.1	130	1.7	4.3	3.0
06	355	4.1	240	3.4	120	2.1	3.7	3.0
07	355	4.6	225	3.8	120	2.5	4.6	3.0
08	395	4.8	230	4.0	115	2.7	4.7	3.0
09	405	4.8	225	4.1	115	2.9	4.5	2.8
10	400	4.9	230	4.2	115	3.0	4.9	2.9
11	385	4.9	215	4.2	115	3.1	4.9	2.9
12	375	5.1	220	4.3	115	3.1	4.9	3.0
13	395	5.0	230	4.3	115	3.2	4.7	2.9
14	395	5.0	220	4.2	115	3.1	4.6	2.9
15	365	5.0	230	4.1	120	3.0	4.5	3.0
16	350	5.2	230	4.0	115	2.8	4.4	3.0
17	325	5.3	235	3.8	120	2.5	3.5	3.0
18	295	5.6	240	3.5	120	2.1	3.4	3.0
19	270	5.6	245	2.9	140	1.7	3.2	3.0
20	250	5.8					2.8	3.2
21	245	5.3					2.3	3.1
22	260	4.6					3.4	3.0
23	270	4.0					2.3	2.9

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 27*

Singapore, British Malaya (1.3°N, 103.8°E) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	3.6					3.5	3.2
01	250	3.4					3.6	3.2
02	245	3.8					3.0	3.3
03	250	2.2					3.5	3.3
04	280	3.1					3.0	(3.2)
05	245	2.0					3.4	(3.2)
06	255	3.6			150	1.3	3.0	3.2
07	255	6.4	220		120	2.3	5.0	3.1
08	290	8.0	225	4.2	120	2.8	4.8	3.0
09	305	9.0	215	4.4	115	3.1	5.3	2.8
10	325	9.6	200	4.5	110	3.3	5.9	2.6
11	320	9.6	200	4.5	110	3.4	5.7	2.6
12	345	9.7	200	4.5	110	3.4	5.6	2.4
13	335	9.2	200	4.5	110	3.4	5.8	2.4
14	325	9.2	200	4.4	110	3.3	5.4	2.5
15	315	9.4	215	4.3	115	3.0	5.0	2.6
16	280	9.5	225	4.1	115	2.7	4.4	2.7
17	255	9.6	235		120	3.2	4.5	3.0
18	235	9.2					3.2	3.2
19	225	8.3					3.6	3.2
20	220	6.5					3.9	3.3
21	220	5.1					4.4	3.4
22	215	4.3					3.4	3.3
23	240	3.4					3.4	3.1

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 28

Townsville, Australia (19.3°S, 146.8°E) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	3.0						3.3
01	235	3.0						3.1
02	230	3.2						3.1
03	220	3.2						3.2
04	220	2.8					2.4	3.1
05	230	2.7						3.1
06	220	3.0						3.3
07	220	4.9			130	2.0	3.4	3.5
08	230	5.9	210	3.7	110	2.4	3.7	3.4
09	250	6.7	210	4.0	110	2.8	3.7	3.4
10	250	7.0	210	4.2	110	3.0	4.0	3.4
11	260	7.4	200	4.3	115	3.2	4.4	3.3
12	250	7.1	200	4.4	110	3.2	4.4	3.3
13	260	7.2	220	4.3	110	3.2	4.4	3.4
14	250	7.1	200	4.2	120	3.0	4.5	3.4
15	250	6.7	200	4.0	120	2.8	4.5	3.4
16	240	7.0	215	3.5	110	2.5	4.2	3.4
17	230	6.0	—	—	120	2.1	3.5	3.4
18	210	4.8			—	E	3.5	3.3
19	220	3.8					3.2	3.2
20	225	3.2					2.7	3.1
21	240	3.2						3.1
22	240	3.0						3.0
23	230	3.1						3.3

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 29

Brisbane, Australia (27.5°S, 153.0°E) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.8						3.0
01	250	3.8					1.8	3.1
02	250	3.8					1.8	3.1
03	240	4.0					1.8	3.2
04	230	3.9					1.9	3.3
05	230	3.3						3.3
06	240	3.5						3.1
07	220	5.0			130	2.1		3.6
08	240	5.9	230	3.8	110	2.6		3.5
09	240	6.4	220	4.1	110	2.8		3.5
10	250	6.2	210	4.2	100	3.3		3.5
11	255	6.5	210	4.3	100	3.3		3.4
12	260	6.5	210	4.3	100	3.3		3.5
13	270	6.1	210	4.2	100	3.2	3.3	3.3
14	260	6.7	210	4.0	100	3.0	3.5	3.4
15	240	7.0	225	3.8	105	2.7	3.6	3.5
16	230	6.6	225	3.2	—	—	3.5	3.6
17	220	5.4			—	—	3.5	3.4
18	220	4.0					2.8	3.4
19	230	3.6						3.2
20	250	3.6						3.0
21	260	4.2						3.1
22	250	4.1						3.1
23	250	3.9						3.1

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 30

Canberra, Australia (35.3°S, 149.0°E) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	—	3.4					2.9	3.1
01	(240)	3.2					2.7	3.1
02	(240)	3.5					2.6	3.1
03	(240)	3.4					2.0	3.2
04	230	3.4					2.4	3.3
05	200	3.2					2.9	3.4
06	(200)	2.8					2.4	3.4
07	220	3.6			—	1.6	2.9	3.6
08	220	5.0	210	—	—	(1.9)	3.1	3.7
09	230	5.6	220	3.5	100	3.5	3.7	3.6
10	240	5.7	210	(4.0)	100	2.8		3.5
11	250	5.8	210	4.0	100	2.9	3.5	3.5
12	250	6.0	200	4.0	100	3.0	3.5	3.5
13	270	6.0	200	4.0	100	2.9	3.5	3.3
14	250	6.4	210	4.0	100	2.7	3.6	3.5
15	240	6.6	215	3.7	100	3.5	3.5	3.5
16	220	6.1	210	—	100	1.8	3.4	3.5
17	210	5.2					3.1	3.5
18	200	4.0					2.8	3.3
19	(200)	3.4					3.8	3.3
20	—	3.1					2.4	3.1
21	—	3.2					3.3	3.1
22	—	3.1					3.3	3.1
23	—	3.0					2.5	3.3

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 31

Hobart, Tasmania (42.9°S, 147.3°E) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.0						3.0
01	290	2.0						3.0
02	290	1.8						3.0
03	290	1.7						(3.0)
04	300	1.7						(3.0)
05	——	E						(2.9)
06	——	E						(3.0)
07	250	2.0						3.1
08	220	3.5			110	1.8		3.1
09	210	4.2			100	2.1		3.2
10	200	4.7			100	2.4		3.2
11	200	5.0			100	2.6		3.2
12	200	5.5			100	2.6		3.2
13	200	5.5			100	2.6		3.1
14	210	5.5			100	2.5		3.2
15	210	5.7			100	2.3		3.2
16	220	5.5			100	1.9		3.2
17	210	4.5						3.2
18	220	3.7						3.1
19	230	3.0						3.1
20	250	2.3						3.0
21	250	2.1						3.1
22	250	2.0						3.0
23	280	2.0						3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 32*

Falkland Is. (51.7°S, 57.8°W) May 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.6					1.6	2.9
01	310	2.6					2.8	2.8
02	295	2.6					2.3	2.9
03	285	2.6					2.1	2.9
04	270	2.6					1.3	3.0
05	240	2.5					1.0	3.2
06	205	2.4					1.4	3.7
07	235	2.6			(170)	(1.3)	1.4	3.3
08	210	4.1			(155)	(1.9)	2.8	3.7
09	210	4.6			(120)	(2.2)	3.7	3.7
10	225	5.0	(205)		(120)	(2.4)	5.0	3.7
11	220	5.3	(210)	(3.5)	(115)	(2.6)	4.1	3.7
12	225	6.0	(215)	(3.5)	(110)	(2.6)	3.6	3.7
13	220	5.8	(220)	(3.6)	(115)	(2.6)	2.8	3.7
14	220	5.6	(215)	(3.2)	(125)	(2.4)	3.1	3.7
15	220	5.4		(2.4)	(140)	(2.1)	3.1	3.8
16	210	4 6				(1.7)	3.1	3.8
17	215	3.4					4.6	3.4
18	235	2.6					2.8	3.3
19	235	2.7					2.8	3.3
20	255	2.3						3.0
21	280	2.5						2.9
22	290	2.6					1.7	2.9
23	310	2.7						2.8

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 33*

Inverness, Scotland (57.4°N, 4.2°W) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.1						2.8
01	310	(1.8)					2.2	(2.7)
02	280	(1.7)					2.3	(2.8)
03	330	(1.6)					2.0	(2.7)
04	305	(1.7)					2.6	(2.8)
05	270	2.4			(170)	(1.2)	2.6	2.9
06	265	3.1	(230)	(2.7)	140	1.7	2.8	3.3
07	280	3.8	220	3.3	120	2.0	2.7	3.2
08	450	4.1	215	3.6	110	2.4	3.0	3.1
09	420	4.4	220	3.8	110	2.5	2.9	3.0
10	415	4.4	215	4.0	110	2.8	3.0	2.9
11	395	4.7	210	4.0	110	2.7	2.9	2.9
12	410	4.8	215	4.1	105	2.8	2.9	2.9
13	395	4.9	205	4.1	105	2.9	2.8	2.9
14	380	5.0	215	4.0	105	2.8	3.0	3.1
15	380	5.0	215	4.0	105	2.7	2.8	2.9
16	340	5.0	220	3.9	110	2.5	2.8	3.1
17	315	5.0	235	3.5	115	2.3	2.3	3.1
18	280	4.9	245	3.2	130	1.9		3.1
19	255	4.7	(250)	(2.7)	(150)	(1.8)		3.1
20	250	4.4						3.1
21	260	4.0						3.0
22	275	3.2						2.9
23	310	(2.6)						2.9

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 34*

Slough, England (51.5°N, 0.6°W) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.1					2.4	2.8
01	290	2.9					2.4	2.8
02	285	2.8					3.0	2.8
03	285	2.6					2.5	2.8
04	275	2.5					3.0	2.9
05	265	2.6					3.8	3.0
06	270	3.5	235	3.0	130	1.8	2.6	3.2
07	315	4.2	230	3.5	120	2.2	3.6	3.2
08	365	4.4	225	3.8	120	2.6	4.0	3.0
09	365	4.8	220	4.0	115	2.8	4.6	3.0
10	365	5.0	220	4.2	115	3.0	4.2	3.1
11	355	5.2	220	4.2	115	3.1	4.4	3.1
12	365	5.3	220	4.3	115	3.1	4.5	3.0
13	365	5.5	225	4.3	115	3.1	4.2	3.0
14	335	5.6	230	4.2	115	3.0	4.2	3.1
15	330	5.4	220	4.1	120	2.9	4.2	3.1
16	315	5.5	230	3.9	120	2.6	3.5	3.1
17	290	5.4	235	3.6	120	2.3	2.7	3.1
18	265	5.4	245	3.2	130	1.9	2.6	3.2
19	250	5.4					2.4	3.2
20	250	5.0					2.5	3.0
21	250	4.3					2.3	3.0
22	270	3.4					2.2	3.0
23	285	3.2					2.4	2.8

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 35*

Singapore, British Malaya (1.3°N, 103.8°E) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	7.1					2.8	3.1
01	230	8.4					2.5	3.3
02	225	8.0					2.4	3.3
03	230	8.8					2.8	3.2
04	245	8.9					2.9	3.2
05	250	8.3					3.2	3.2
06	260	8.2					3.0	3.1
07	240	6.5			125	2.2	4.2	3.2
08	290	8.2	225		120	2.8	4.6	2.9
09	300	9.4	215	(4.3)	115	3.1	4.5	2.8
10	315	9.8	210	4.6	110	3.3	5.9	2.4
11	335	10.5	200	4.7	110	3.5	5.7	2.2
12	340	9.8	200	4.6	110	3.5	5.6	2.3
13	335	10.0	200	4.7	110	3.5	5.8	2.4
14	325	10.0	200	4.5	110	3.4	5.4	2.5
15	310	10.2	215	4.4	110	3.2	5.4	2.5
16	295	10.5	230		(115)	2.8	5.4	2.6
17	275	10.6	235			2.3	5.0	2.7
18	255	11.1					4.3	2.8
19	255	11.0					4.0	3.0
20	245	10.4					3.9	3.0
21	230	9.6					3.8	3.2
22	220	8.2					3.8	3.3
23	220	7.2					2.8	3.1

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 36

Townsville, Australia (19.3°S, 146.8°E) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(3.4)					3.5	(3.1)
01	260	3.5					3.9	3.0
02	250	3.5					3.5	3.0
03	220	3.2					3.3	3.3
04	220	2.8					3.0	3.2
05	230	2.7					2.7	3.1
06	230	3.0					2.4	3.2
07	220	5.2	——	——	120	2.0	3.3	3.5
08	230	6.4	215	3.5	110	2.5	3.8	3.4
09	250	7.6	220	4.3	110	3.0	4.0	3.3
10	260	8.5	220	4.4	110	3.2	4.4	3.3
11	250	8.9	210	4.5	110	3.3	4.3	3.4
12	260	8.2	200	4.4	115	3.3	4.4	3.4
13	270	8.0	200	4.4	110	3.3	4.2	3.2
14	260	8.4	220	4.3	110	3.2	4.5	3.3
15	260	8.5	220	4.1	120	3.0	4.4	3.3
16	250	7.8	220	3.7	120	2.8	4.4	3.3
17	240	7.5	——	——	115	2.2	4.4	3.4
18	220	6.3			——	E	4.0	3.4
19	235	4.7					4.0	3.3
20	240	4.4					3.7	3.1
21	250	3.8					3.2	3.1
22	270	3.8					3.4	3.1
23	240	3.6					3.4	3.2

Time: 150.0°E.
Sweep: 1.0 Mc to 18.0 Mc in 1 minute 55 seconds.

Table 37

Brisbane [illegible] (27.6°S, 153.0°E) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.9					3.5	3.0
01	260	3.8					3.3	3.0
02	270	4.0					3.2	3.0
03	250	4.0					2.5	3.2
04	230	3.7					2.6	3.2
05	230	3.4					2.0	3.2
06	230	3.9			---	---		3.3
07	220	5.6			120	2.2		3.8
08	240	6.1	220	4.0	110	2.6		3.5
09	260	6.8	220	4.2	100	3.0		3.4
10	260	7.8	210	4.4	100	3.2	3.4	3.5
11	250	7.6	210	4.5	110	3.2	3.5	3.4
12	265	7.5	200	4.5	110	3.2	3.5	3.3
13	280	7.2	210	4.4	110	3.1	3.3	3.2
14	260	7.8	220	4.3	105	3.1	3.4	3.2
15	250	7.8	230	≤4.1	105	3.0	3.2	3.4
16	240	7.4	230	3.5	110	---		3.4
17	220	6.6			---	---	3.5	3.4
18	220	5.4					3.2	3.3
19	240	4.7					3.4	3.0
20	260	4.4					3.1	3.0
21	250	4.3					3.7	3.1
22	250	4.2					3.4	3.0
23	250	4.0					2.8	3.0

Time: 150.0°E.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 38

Canberra, Australia (35.3°S, 149.0°E) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.6					3.6	3.0
01	(240)	3.5					3.0	3.0
02	(240)	3.5					3.0	3.0
03	(240)	3.6					3.2	3.1
04	230	3.6					2.8	3.3
05	(230)	3.3					3.0	3.3
06	(215)	3.1			---	E	2.6	3.3
07	210	4.5	---	---	---	1.7	3.3	3.6
08	230	5.6	210	---	100	2.3	3.5	3.6
09	240	6.1	205	(4.0)	100	2.6	3.8	3.5
10	250	6.4	200	4.1	100	3.0	3.5	3.5
11	260	6.6	200	4.2	100	3.1	3.4	3.4
12	260	7.2	200	4.2	100	3.2	3.5	3.4
13	260	7.8	210	4.2	100	3.1	3.5	3.4
14	260	7.0	210	4.2	100	3.1	3.5	3.3
15	245	7.2	220	(4.0)	100	2.9	3.5	3.4
16	240	6.9	220	(3.7)	110	2.5	3.4	3.5
17	230	6.2	---	---	---	1.7	3.5	3.5
18	210	5.8					3.4	3.4
19	215	4.6					3.0	3.2
20	(230)	4.4					3.2	3.1
21	230	4.1					3.4	3.1
22	(240)	3.8					3.8	3.1
23	---	3.8					3.8	3.1

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 39

Hobart, Tasmania (42.9°S, 147.3°E) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.8						2.9
01	280	2.6						2.9
02	270	2.6						2.9
03	290	2.0						2.9
04	290	2.0						2.9
05	270	1.8						3.0
06	290	2.0						(3.0)
07	235	3.6			120	1.6		3.1
08	220	4.7			100	2.1		3.2
09	210	5.5			100	2.5		3.1
10	210	5.7			100	2.8		3.1
11	200	6.4			100	3.0		3.0
12	200	6.6			100	3.0		3.1
13	200	7.0			100	3.0		3.1
14	200	6.6			100	2.9		3.1
15	215	6.6			100	2.6		3.1
16	220	6.0			100	2.2		3.1
17	230	6.0			110	1.8		3.1
18	240	5.1						3.1
19	250	4.6						3.0
20	250	3.7						3.0
21	250	3.4						3.0
22	270	3.0						2.9
23	280	2.8						2.9

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 40*

Falkland Is. (51.7°S, 57.8°W) April 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.2					2.0	2.8
01	300	3.2					2.2	2.8
02	290	3.1					1.8	2.8
03	285	3.1					1.8	2.8
04	280	3.1					1.6	2.9
05	255	3.2					2.4	3.1
06	225	3.2			(170)	(1.2)	2.2	3.4
07	215	5.0			150	1.7	1.4	3.5
08	215	6.1	225		125	2.2	3.1	3.6
09	225	6.9	225	(3.8)	115	2.6	4.5	3.6
10	235	7.6	225	4.1	110	2.8	4.8	3.5
11	235	8.4	220	4.2	110	2.8	4.8	3.5
12	230	8.1	220	4.1	105	2.8	4.6	3.6
13	230	7.3	220	4.0	110	2.8	4.1	3.7
14	225	6.3	210	3.8	110	2.7	4.8	3.7
15	225	6.0	220		115	2.4	3.2	3.7
16	225	5.6			135	2.2	4.0	3.7
17	220	5.3			145	1.8	3.1	3.7
18	230	4.6					3.1	3.3
19	235	4.2					2.2	3.3
20	250	3.4					1.7	3.1
21	275	3.2						3.0
22	300	3.2						2.8
23	300	3.2						2.8

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 41

Poitiers, France (46.6°N, 0.3°E) March 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 280	3.0						3.0
01	< 280	3.0						2.9
02	< 280	2.9						2.9
03	< 270	2.9						2.9
04	< 270	2.6						3.0
05	(245)	2.2						(3.2)
06	245	2.8	---	---				3.2
07	245	4.0	220	2.2	---	E	2.0	3.5
08	250	4.6	225	3.4	115	2.3	2.0	3.5
09	280	5.0	205	3.8	110	2.6		3.4
10	280	5.3	210	4.0	110	2.7	2.8	3.5
11	285	5.6	215	4.2	105	2.9	2.5	3.4
12	300	5.6	210	4.1	110	3.0		3.3
13	300	5.8	220	4.1	110	3.0		3.3
14	295	5.8	230	4.0	110	2.9		3.4
15	285	5.6	235	3.9	115	2.8		3.3
16	270	5.5	235	3.6	115	2.4		3.4
17	250	5.4	245	2.5	130	2.0	2.1	3.4
18	240	5.1	---	---	---	---	2.1	3.4
19	240	4.8						3.2
20	245	4.4						3.2
21	< 245	3.8						3.2
22	< 260	3.4						3.0
23	270	3.0						3.0

Time: 0.0°.
Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 42

Casablanca, Morocco (33.6°N, 7.6°W) March 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 250	3.4						3.0
01	< 275	3.2						3.0
02	250	3.1						2.9
03	< 250	3.1						3.0
04	< 250	3.0						3.2
05	< 225	2.8						3.2
06	< 220	2.5						3.4
07	220	4.0	---	---	---	1.7	2.0	3.6
08	230	5.0	210	3.0	110	2.2		3.6
09	250	5.5	200	3.8	105	2.6	3.4	3.5
10	275	5.9	200	4.2	100	2.9		3.4
11	285	6.3	200	4.3	100	3.1		3.4
12	275	6.7	200	4.4	100	3.2		3.4
13	280	6.7	220	4.4	100	3.2		3.3
14	280	7.0	215	4.3	100	3.2		3.4
15	270	7.1	230	4.2	100	3.0		3.4
16	270	7.0	225	4.0	100	2.8		3.4
17	250	6.8	240	3.9	110	2.5		3.4
18	245	7.1	---	---	120	1.9	2.7	3.5
19	220	6.7					2.3	3.8
20	210	4.9					2.0	3.4
21	< 250	3.9						3.0
22	< 250	3.7						3.0
23	255	3.5						3.0

Time: 0.0°.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.

Table 43*

Khartoum, Sudan (15.6°N, 32.8°E) March 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	7.2						(2.7)
01	270	6.0						(3.0)
02	250	5.7						(3.2)
03	230	5.1						(3.3)
04	(230)	3.7					2.4	(3.4)
05	(240)	2.2					1.9	(3.4)
06	260	3.9			(120)	(1.4)		3.4
07	(240)	6.6	(220)	(4.2)	120	2.2		3.2
08	(250)	(7.9)	(230)	(4.5)	110	2.8	5.0	(3.2)
09	(330)	(8.8)	220	(4.5)	120	3.2	(3.7)	(2.9)
10	(330)	(9.3)	220	(4.6)	110	3.3	(4.1)	(2.8)
11	(370)	(9.9)	220	4.6	110	3.4	(3.5)	(2.8)
12	(320)	9.8	220	4.6	110	3.5		2.8
13	320	10.2	200	4.6	110	3.4	4.5	(2.8)
14	310	10.7	210	4.5	110	3.3		2.9
15	300	11.5	220	4.4	110	3.1	4.1	3.1
16	310	11.4	230	(4.0)	110	2.8	5.2	3.2
17	260	10.0	230		120	2.2	5.2	(2.9)
18	260	10.0			110	(1.5)	4.7	3.0
19	250	9.6					2.7	(2.9)
20	260	9.2						(3.0)
21	250	8.8						(2.8)
22	280	(7.7)						(2.7)
23	290	(7.5)						(2.7)

Time: 30.0° E.
Sweep: 0.67 to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 44*

Falkland Is. (51.7°S, 57.8°W) March 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.9					2.9	2.6
01	310	3.8					2.8	2.7
02	310	3.7					3.1	2.7
03	300	3.5					2.9	2.8
04	275	3.8					2.9	3.0
05	265	3.4				(1.0)	0.9	3.1
06	240	4.0			160	1.7		3.4
07	235	4.8			130	2.1	2.5	3.5
08	240	5.0	235		115	2.4	3.2	3.4
09	290	5.6	225	(3.7)	105	2.7	4.8	3.3
10	300	6.1	225	4.1	105	3.8	4.9	3.3
11	275	6.7	225	4.2	105	2.9	5.3	3.4
12	290	7.0	225	4.2	(110)	(2.9)	5.3	3.3
13	265	6.8	225	4.2	(110)	(3.0)	5.0	3.4
14	280	6.1	225	4.1	(105)	(3.0)	5.0	3.5
15	250	5.9	220	3.9	(110)	(2.7)	4.9	3.5
16	250	5.7	240	(3.7)	(110)	2.5	4.7	3.5
17	240	5.6			(120)	2.1	4.0	3.5
18	240	5.5				(1.6)	4.7	3.4
19	260	5.3					3.2	3.1
20	265	5.3					3.9	3.0
21	260	4.8					3.1	3.0
22	280	4.3					3.0	2.9
23	296	4.1					3.1	2.8

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 45

Poitiers, France (46.8°N, 0.3°E) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	3.3						3.0
01	265	3.2						3.0
02	265	3.3						3.0
03	265	3.3						3.0
04	< 270	3.1						3.0
05	< 250	2.6						(3.1)
06	< 230	2.5						(3.2)
07	225	3.6	---	---				3.4
08	220	4.7	220	2.3	150	2.0		3.8
09	230	5.2	215	3.2	115	2.4		3.8
10	245	5.5	210	3.6	115	2.6		3.8
11	250	5.8	210	3.9	115	2.8	2.0	3.5
12	250	8.0	220	4.0	115	2.9	1.8	3.6
13	250	5.8	230	3.9	115	2.8		3.4
14	250	5.6	225	3.8	115	2.7		3.5
15	250	5.8	230	3.4	120	2.5		3.5
16	240	5.6	235	---	125	2.1	2.3	3.5
17	225	5.2	---	1.9	---	---	2.0	3.5
18	220	4.2						3.3
19	240	4.0						3.2
20	< 240	3.9						3.2
21	245	3.4						3.2
22	< 240	3.2						(3.0)
23	250	3.1						3.1

Time: 0.0°.
Sweep: 1.8 Mc to 16.8 Mc in 1 minute.

Table 46

Casablanca, Morocco (33.6°N, 7.6°W) February 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 260	3.3						3.0
01	< 250	3.3						3.0
02	---	3.2						3.0
03	< 260	3.2						3.0
04	< 250	3.1						3.1
05	< 225	3.1						3.3
06	220	2.6						3.5
07	< 220	3.1						3.2
08	220	5.3	200	---	120	2.0		3.7
09	225	5.8	200	3.7	110	2.4		3.7
10	250	6.0	200	4.1	100	2.8		3.6
11	260	6.5	205	4.3	100	3.0		3.4
12	250	6.7	200	4.3	100	3.1		3.6
13	250	6.4	200	4.3	100	3.1		3.8
14	255	6.3	220	4.3	100	3.0		3.5
15	250	6.3	225	4.2	105	2.9		3.5
16	250	6.5	220	4.0	110	2.7		3.5
17	230	6.2	230	3.3	115	2.2	3.0	3.6
18	220	5.8			---	---	2.6	3.5
19	215	5.3					2.3	3.5
20	< 215	3.9					2.3	3.2
21	< 230	3.5					2.2	3.2
22	< 250	3.3					2.2	3.1
23	< 260	3.2					1.8	3.0

Time: 0.0°.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.

Table 47

Poitiers, France (46.6°N, 0.3°E) January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 260	3.2						3.0
01	260	3.4					2.0	2.9
02	270	3.2					1.8	3.0
03	270	3.3						3.0
04	250	3.0						3.2
05	230	2.6						3.2
06	< 230	2.3						3.1
07	< 240	2.6					1.9	3.1
08	220	4.9	< 185	2.0	---	---	2.0	3.6
09	230	5.8	210	2.7	125	2.1	2.3	3.6
10	235	5.9	230	3.5	120	2.5	2.0	3.6
11	240	6.8	230	3.8	120	2.6	2.0	3.7
12	235	6.2	220	3.8	120	2.7		3.6
13	245	6.2	220	3.7	120	2.7		3.6
14	245	6.0	235	3.6	120	2.5		3.5
15	235	5.7	230	3.0	125	2.2	2.0	3.6
16	220	5.4	230	2.0	---	---	2.1	3.6
17	215	4.5						3.4
18	225	4.0						3.4
19	230	3.3					2.0	3.0
20	250	3.0					2.0	(2.9)
21	< 255	3.1					2.0	3.0
22	< 250	3.2					2.1	3.0
23	250	3.3					2.0	3.0

Time: 0.0°.
Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 48

Casablanca, Morocco (33.6°N, 7.6°W) January 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	< 250	3.3					2.1	3.0
01	< 260	3.2					2.0	3.0
02	< 260	3.2					2.1	3.1
03	250	3.1						3.2
04	240	3.0						3.2
05	< 220	2.6						3.5
06	< 250	2.2						3.2
07	< 250	2.4						3.2
08	225	4.8	---	---	---	---	2.3	3.8
09	230	5.7	210	---	120	2.3		3.8
10	250	7.2	210	4.1	100	2.7		3.5
11	250	8.1	210	4.3	110	2.9		3.6
12	250	6.7	200	4.3	105	3.1		3.6
13	250	6.6	200	4.3	105	3.0		3.5
14	255	8.5	200	4.1	110	3.0		3.5
15	250	6.5	220	4.0	110	2.8		3.5
16	240	8.1	220	3.6	110	2.5		3.6
17	225	5.5	---	---	120	2.0		3.6
18	220	4.8			---	---	2.2	3.6
19	< 220	4.2					2.5	3.3
20	< 230	3.4					2.4	3.2
21	< 230	3.1					2.2	3.0
22	250	3.1					2.2	2.9
23	< 280	3.2					2.0	2.9

Time: 0.0°.
Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.

TABLE 49

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Form adopted June 1946

h'F2 (Characteristic), Km (Unit), April (Month), 1954

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat. 38.7°N, Long. 77.1°W — 75° W Mean Time

Scaled by: E.J.W., J.W.P., F.J.M., J.J.S.

Calculated by: J.W.P., F.J.M., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	340 F	S	S	S	(290) S	(310) S	260	270	270	310	340	350	370	330	300	310	290	280	260	230	(260) A	260	270	270
2	260	270	260	250	240	(300) S	240 H	260	280	350	450 K	500 K	430 K	420 K	G K	400 K	380 K	380 R	300 K	270 K	240 K	220	(260) S	(290) S
3	S	A	S	S	S	S K	240 K	(270) L K	G K	390 K	310 K	360 K	330 K	330 K	320 K	350 K	310 K	310 K	[280] A K	260 K	240 K	260 K	(250) S K	S K
4	S K	S K	S K	S K	S K	S K	280	250	G	G	G	490	500	480	400	380	380	350	280	250	250	250	S	S
5	S	S	S	S	S	S	(280) S	420	480	370	460	400	340	370	330	330	310	310	270	240	250	260	270	290
6	S	S	S	S	S	S	250	230	270	310	320	320 H	350	350	330	330	310	270	250	240	240	240	280	(290) S
7	(290) S	280	280	(290) S	(290) S	(270) S	240	330	400	310	320	370	410	410	370	380	330	310	270	250	250	260	270	290
8	300	280	280 S	260	280	290	270	G	350	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	360	320	300	290	280	240	230	240	280	(290) S
11	280 S	280	280	280	270	270	240	250	260	C	C	C	C	C K	C K	320 K	290 K	270 K	270 K	230 K	240 K	310 K	S K	S K
12	S K	S K	(360) S K	370 S K	S K	S K	(280) S K	270 F K	G K	G K	G K	G K	G K	G K	G K	G K	G K	460 K	320 K	250 K	330 K	300 K	320 K	E K
13	E K	E K	E K	E K	E K	E K	280 K	G K	560 K	G K	G K	580 K	360	360	370	320	330	290	260	250	240	250	280 S	290
14	290	290	280 S	280	310	(330) S	270	280	300	310	300	320	350	310	340	300	310	300	260	240	250	260	240	270
15	280	280	270	280	(300) S	290	(270) L	[300] L	340	310	330 H	340	320	310	310	350	290	330	270	240	230	220	(260) A	(300) S
16	310	(300) S	(290) S	(290) S	(320) S	270	260	[310] L	360	280	290 H	310 H	300	290	320	320	310	290	270	230	230	230	260	270
17	(300) S	(340) S	290	270	280	(230) S	260	330	310	340	390 H	390	390	350	320	310	300	280	260	250	230	220	(280) S	300
18	320	280	(330) S	(350) S	(330) A	(300) S	[320] L	330	[320] L	320	350	410	370	370	340	330	320	300	270	240	230	230	240	300
19	[310] S	320	300	250	250 S	(290) S	L K	470 K	G K	G K	G K	G K	G K	G K	450 K	420 K	360 K	350 K	290 K	240 K	240 K	260	300	300 S
20	300	300 F	310	290	270	280	250	[280] S	310	300	320	410	310	320	360	320	300	280	260	250	230	220	(280) S	340 S
21	330	(300) S	300	310	290	270	[260] L	260	340	330 H	400	310	390 H	350	320	330	300	290	260	240	230	260	280	280
22	(280) S	(280) S	(270) S	(270) S	(270) S	(250) S	250 H	280	290	300	330	320	340	300	320	300	300	280	250	220	230	250	280	280
23	280	270	(270) S	(310) S	[300] S	290	250	320	390	310	350	320	360	380	370	370	310	300	280	230	230	250	290	(330) S
24	A	A	A	(330) S	A	A	250 K	G K	G K	G K	440 K	G K	G K	500 K	490 K	440 K	330 K	320 K	290 K	240 K	240 K	(290) S K	300	(320) S
25	340	(320) S	320	S	A	270	(280) L K	L K	G K	G K	500 K	460 K	480 K	400 K	380 K	370 K	360 K	310 K	260	(270) A	[270] A	(270) S	A	S
26	S	(330) S	(310) S	(260) S	S	S	G	350	G	G	G	420	450	440	410	460	360	330	300	260	240	250	250	280
27	280 S	300	300 S	S	S	(290) S	L	G	G	G	470	[420] A	380	320	310	320	300	300	[280] A	A	250	240	280	290
28	290	280	300	300	(290) S	270	L	G	310	430	390	350	370	430	440 S	380	320	320	280	250	240	250	250	260
29	260	280	260	(270) S	270 S	250	(260) L	270 H	260	300	270	320	320	300	350	330	340	390	270	240	220	210	250	280
30	(280) S	290	290	290	300	250	280 H	270	(340) S	320	400	430 H	620	450	430	420	410	360	300	240	230	240	260	290
31																								
Median	290	290	290	290	290	280	260	300	340	340	390	400	370	360	360	330	310	300	270	240	240	250	270	290
Count	21	21	22	21	19	21	25	27	28	26	26	26	26	26	27	28	28	28	28	27	28	28	25	24

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 50

Central Radio Propogation Laboratory, National Bureou of Standards, Washington 25, D.C.

foF2 (Characteristic), Mc (Unit), April (Month), 1954

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: E. J. W., J. W. P., F. J. M., J. J. S.

Calculated by: J. W. P., F. J. M., J. J. S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(1.9)$^{F}_{S}$	(1.9)$^{F}_{S}$	(1.7)$^{J}_{S}$	(1.4)$^{J}_{S}$	(1.9)$^{F}_{S}$	(2.0)$^{F}_{S}$	3.0^{F}	4.3	4.7	4.4	5.1	5.0	5.0	5.3	5.3	5.2	5.0	5.0	5.0	5.0	4.2	3.9	3.3	3.1
2	2.9	2.4	2.3	2.4	2.1	2.0	3.4^{N}	4.5	4.8	4.8	4.5^{K}	4.5^{K}	4.9$^{N}_{K}$	4.6^{K}	<4.0$^{G}_{K}$	4.4^{K}	4.2^{K}	4.4^{K}	4.5^{K}	4.5^{K}	4.7^{K}	3.2	2.3	2.1
3	(2.0)$^{F}_{S}$	[1.9]^{A}	(1.8)^{S}	1.6$^{J}_{S}$	1.6$^{J}_{S}$	1.6$^{J}_{S}$	2.7^{K}	3.3^{K}	<3.7$^{G}_{K}$	4.4^{K}	5.0^{K}	5.0^{K}	5.5^{K}	5.4^{K}	5.5^{K}	5.2^{K}	5.2^{K}	4.^{K}	(4.7)$^{A}_{K}$	(4.7)$^{S}_{K}$	(4.1)$^{S}_{K}$	(3.3)$^{D}_{K}$	(2.8)$^{F}_{K}$	(2.2)$^{P}_{K}$
4	(2.4)$^{F}_{S}$	(2.0)^{A}	(1.9)^{J}	1.9	1.7^{J}	1.6^{J}	2.6	3.4	<3.5^{G}	<3.7^{G}	<3.8^{G}	(4.5)^{N}	(4.4)^{N}	4.4	4.5	4.4	4.2	4.2	4.4	4.3	4.2	3.0	2.3	2.2
5	1.8	(1.6)$^{J}_{S}$	(1.6)$^{J}_{S}$	1.6$^{J}_{S}$	(1.5)$^{J}_{S}$	(1.8)$^{J}_{S}$	(2.1)^{S}	3.5	3.8	4.2	4.3	4.6	5.0	5.0	5.0	5.0	4.9	4.5	4.5	4.2	3.8	3.1^{F}	3.0^{F}	(2.6)$^{S}_{F}$
6	(2.3)^{F}	(2.2)$^{F}_{S}$	(2.2)$^{J}_{S}$	[2.1]^{S}	(2.0)$^{J}_{S}$	(2.2)^{J}	(3.4)$^{S}_{S}$	(4.2)^{N}	5.1	5.0	5.1	5.1^{N}	5.1	5.4	5.3	5.1	5.2	5.2	4.9	4.7^{F}	4.6	3.7	(3.0)$^{F}_{S}$	2.7
7	(2.6)$^{F}_{S}$	2.6	2.9	(2.7)$^{F}_{S}$	(2.3)$^{F}_{S}$	2.5^{F}	3.2	(4.0)^{S}	4.0	4.8^{N}	4.6^{S}	(4.8)^{D}	(4.5)^{D}	4.7	4.9	4.7	4.8	4.5	4.4	4.2	3.9	3.4	3.0	2.8
8	2.5	2.6	2.4	2.4	(2.0)$^{F}_{S}$	(2.3)^{F}	3.2	<3.6^{G}	4.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	5.3	5.5	5.4	4.8	4.7	5.0	5.1	3.9	3.1	2.9^{S}
11	2.8	(2.5)^{J}	(2.4)$^{J}_{S}$	(2.4)^{S}	(2.4)$^{S}_{P}$	(2.5)$^{F}_{P}$	3.9	5.1	5.6	C	C	C	C	C^{K}	C^{K}	7.6^{K}	8.5^{K}	7.6^{K}	7.8^{K}	8.4^{K}	6.6^{K}	2.7^{K}	S^{K}	S^{K}
12	S^{K}	S^{K}	K(2.3)$^{J}_{S}$	K(2.1)$^{S}_{P}$	S^{K}	S^{K}	K(2.7)^{F}	K3.2^{F}	K<3.4^{G}	K<3.7^{G}	K<3.7^{G}	K<3.9^{D}	K<3.8^{G}	K<3.9^{G}	K<3.7^{G}	K<3.6^{G}	K<3.5^{G}	3.8^{K}	K(4.0)^{S}	K(4.1)$^{S}_{P}$	K(3.4)$^{F}_{S}$	2.5^{K}	K1.9^{F}	K<1.0^{E}
13	K<1.0^{E}	K<1.0^{E}	K<1.0^{E}	K<1.0^{E}	K<1.0^{E}	K<1.0^{E}	2.8^{K}	K<3.3^{G}	3.7^{K}	K<3.8^{G}	K<3.9^{G}	4.4^{K}	5.1	5.2	5.1	5.3	5.0	4.9	4.6^{S}	4.8	5.0	4.0	3.4	3.0
14	3.1^{F}	2.7^{F}	2.5^{F}	2.2^{F}	(1.8)^{F}	(1.8)^{F}	3.5	4.5	4.8	5.0	5.6	5.4	5.3	5.5	5.4	5.6	5.4	5.2	5.5	5.6	5.0	4.6	3.8^{F}	3.3
15	3.0^{F}	2.9	2.6$^{F}_{S}$	(2.3)$^{F}_{S}$	(1.9)^{F}	(2.2)^{F}	3.3	3.8	4.5	5.1	5.4^{N}	5.6	5.8	6.0	5.6	5.7	6.3	5.9	6.8	7.2	7.0	(5.2)$^{F}_{S}$	3.3	2.5^{F}
16	2.5	2.4	2.4	1.8	1.9^{F}	2.3	3.4^{N}	4.0^{N}	4.6^{N}	(5.9)^{S}	5.6^{N}	6.0^{N}	5.8	5.9	5.6	5.6	5.5	5.7	5.6	(6.0)^{S}	5.6	4.0	2.9	2.5
17	2.2	(2.0)^{S}	2.1	2.3	2.3	(2.7)^{S}	3.8	4.2	4.5	4.5	4.8^{N}	4.9	5.0	5.6	5.8	5.7	5.6	5.3	5.0	4.9	5.0	3.6	2.4	2.2
18	2.3	(2.2)^{S}	1.9	1.7$^{F}_{S}$	2.0	2.2	3.2^{N}	3.8	(4.1)^{S}	5.0	4.9	4.9	5.0	5.3	5.6	5.4	5.3	5.3	5.2	4.8	4.8	(3.9)^{S}	(2.6)^{S}	2.1
19	1.9	2.0^{S}	2.0	(1.9)^{S}	1.8^{S}	2.0	3.1^{K}	3.5^{K}	K<3.6^{G}	K<3.8^{G}	K<3.9^{G}	K<4.0^{G}	K<4.0^{G}	K<3.9^{G}	4.4^{K}	4.4^{K}	4.5^{K}	4.3^{K}	4.2^{K}	4.2^{K}	3.7^{K}	2.8	(2.4)$^{F}_{S}$	2.4
20	2.4	2.2	2.0$^{F}_{S}$	2.0^{F}	2.3^{F}	2.6	3.6	4.1	4.7	5.2	5.2	5.4^{N}	5.7	5.7	5.4	6.0	5.8	5.4	5.0	5.4	5.2	4.0	2.2	2.1
21	2.1	2.1	2.2	(2.1)$^{J}_{S}$	2.1	2.3	3.1	4.0	(4.3)$^{J}_{S}$	(4.2)$^{D}_{N}$	4.8	5.3	5.0	5.3	5.5	5.2	4.9	4.7	4.5	4.6	(4.1)$^{D}_{S}$	(3.5)$^{S}_{S}$	(2.7)$^{F}_{S}$	2.9
22	2.6	2.6	2.3	2.^{S}	(1.9)$^{F}_{S}$	(2.1)$^{D}_{S}$	3.8^{N}	4.3	5.0^{S}	5.2	5.1	5.6	5.4	5.5	5.5	5.4	5.3	5.3	5.4	5.4	4.8	4.0	3.5	3.3
23	3.0	2.8	2.3	(1.8)^{S}	(1.8)^{S}	2.1^{S}	3.3	4.3^{N}	4.4	5.3	5.8	5.2	5.1	5.1	5.2	5.4	5.5	5.4	5.2	5.3	3.9^{F}	3.2	2.4^{F}	(2.1)$^{F}_{S}$
24	A	A	[1.8]^{A}	1.8	A	A	3.2^{K}	<3.4^{G}	<3.6^{G}	3.7^{A}	4.4^{K}	<4.0^{G}	<4.1^{K}	4.2^{K}	4.3^{K}	4.3^{K}	4.7^{K}	4.3^{K}	4.2^{K}	4.2^{K}	3.6^{K}	2.5^{K}	2.2	(2.1)^{S}
25	(2.1)^{S}	1.9^{S}	1.9	A^{S}	A	2.0	3.2^{K}	3.6^{K}	<3.6^{G}	<3.8$^{G}_{K}$	4.2^{K}	4.5^{K}	4.5^{K}	4.8^{K}	4.9^{K}	4.8^{K}	4.8^{K}	4.8^{K}	4.7	4.3	[3.6]^{AS}	(3.4)^{S}	[2.6]^{A}	1.8^{S}
26	[1.9]^{S}	(2.0)^{S}	(2.0)^{S}	(1.9)^{S}	(1.8)^{S}	[2.3]^{S}	<3.2^{N}	3.8	<3.6^{G}	<3.8^{G}	<4.0^{G}	4.4	4.4	4.5	4.5^{K}	4.3	4.6	4.7	4.9	5.6	5.6	4.4	3.8	3.2
27	2.9	2.3	2.1^{S}	1.7	(1.5)$^{J}_{S}$	2.0	3.1	<3.2^{G}	<3.5^{G}	<3.7^{G}	4.2^{S}	4.4	4.9	5.2	5.6^{K}	5.6	5.8	5.6	[6.2]^{A}	6.8	4.4	3.2	2.7^{F}	2.5$^{F}_{S}$
28	(2.2)^{S}	(2.2)^{F}	2.2^{F}	2.1^{F}	(2.0)^{F}	2.2^{F}	3.2	<3.4^{G}	4.^{S}	4.2^{S}	4.5^{S}	4.7	4.7	4.5	4.5	4.6^{S}	4.8	4.6	4.6	5.2	5.2	4.0	3.6^{F}	2.9$^{F}_{S}$
29	(2.6)^{F}	2.6^{F}	2.3$^{F}_{S}$	(2.1)$^{F}_{S}$	(2.1)$^{F}_{S}$	2.4^{F}	3.8	5.0^{N}	5.4	5.0	5.6	5.5	5.5	5.6	5.3	5.6	5.5	5.8	6.0	6.4	6.0	4.6	3.1	2.8
30	2.7	2.4^{F}	(2.4)$^{F}_{S}$	(2.1)$^{F}_{S}$	2.3$^{F}_{S}$	2.5	3.4^{N}	3.8	(4.6)^{S}	4.7	4.8^{N}	4.7^{N}	4.3	(4.8)^{S}	4.5	4.4	4.3	4.5	4.4	(4.8)^{S}	(4.6)$^{S}_{P}$	(3.7)$^{S}_{P}$	(3.1)$^{S}_{F}$	(2.7)$^{F}_{S}$
31																								
Median	2.4	2.2	2.2	2.1	(1.9)	2.2	3.2	3.8	4.4	4.6	4.8	4.9	5.0	5.2	5.3	5.2	5.1	4.8	4.9	4.8	4.8	3.6	2.9	2.5
Count	26	26	28	27	25	26	28	28	28	26	26	26	26	26	27	28	28	28	28	28	28	28	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 51

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), April (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

Scaled by E.J.W., J.W.P., F.J.M., J.J.S.

75°W Mean Time

Calculated by J.W.P. F.J.M., J.J.S.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	(1.7)[3]				1.7	(2.0)	3.8	4.7	4.8	4.7	5.0	5.0	5.3			5.0	4.4				4.0	3.6	3.3	3.0
2	2.5				2.0			4.6	4.8	4.7	4.6	4.6	4.7			4.2	4.1					2.5		
3	2.0						3.1	<3.4	<3.7	5.0	4.9	5.3	5.4			5.1					(3.8)	3.1	(2.0)	
4					[1.8]	[1.8]	3.2	<3.5	<3.6	3.8	<3.9	(4.4)	4.3	4.5	4.5	4.3	4.2	4.3	4.3	4.2	3.5	2.9	2.5	
5					(1.4)	1.6	3.1	3.7	4.0	4.1	4.4	4.6	4.8	5.0	5.0		4.6	4.6		4.0	3.5	3.0	2.7	(2.7)
6	(2.3)	2.3			F		4.3	(4.7)	5.4	5.2	5.2	5.1	5.3	5.5	5.2		5.2							
7	2.8		(2.5)	2.4	2.2	2.5	3.5	(3.9)	4.2	4.3	4.5	4.8	4.4	4.8	4.9	4.7	4.6	4.3	4.3	4.2	3.8	3.2	2.9	2
8	2.6	2.4	2.5		2.3	2.2	3.5	3.8																
9																								
0														5.3	5.4	5.5	5.1	[4.8]	4.7	5.3	(4.0)	3.1	3.0	
11	(2.7)	2.5	(2.4)	2.4		3.0	4.6	5.4	5.6							8.0	8.2	7.2	8.0	6.4	(3.4)	F	S	S
12	(2.7)	S	S	S	S	(2.0)	3.2	3.2	<3.5	<3.7	<3.9	[3.9]	<3.9	<3.8	<3.7	<3.5	<3.4	4.0	3.4	4.2	[3.0]	2.0	(1.7)	<3.0
13	<1.0	<1.0	<1.0	<1.0	<1.0	2.1	3.2	3.4	3.7	<4.0	4.3	4	4.4	5.0	5.2	5.2	5.0	4.7	4.5	5.0	4.6	3.8	3.4	3.1
14	3.0	2.7		1.9	(1.8)	2.5	4.1	4.5	5.0	5.4	5.5	5.5	5.6	5.4	5.7	5.4	5.4	5.4	5.6	5.2			3.4	3.2
15	2.9	2.8	2.5	(2.1)	2.1	2.6	3.7	4.2	5.0	5.2	5.4	5.6	5.8	6.1	5.5	6.1	5.8	6.6	7.0	7.0	6.1	4.1		
16	2.1	2.4	2.0	1.8	1.9	2.8	3.4	4.4	5.2	6.3	5.8	5.8	5.6	5.7	5.2	5.7	5.5	5.6	5.7	5.8	(4.7)	3.3	2.6	2.4
17		2.1	2.2	2.2	2.4	3.2	4.1	(4.4)	4.7	4.6	4.7	4.9	5.2	5.6	5.8	5.6	5.4	5.2	4.8	5.2	4.5	3.0	2.3	2.2
18	2.3	2	1.7	(1.6)	2.1	2.7	3.5	4.0	4.4	5.6	4.9	4.9	5.3	5.5	5.5	5.3	5.4	5.2	5.2	5.0	4.5	3.4	2.2	2.1
19	2.0	1	1.7	2.2	1.9	2.6	3.4	<3.6	<3.8	<3.8	<3.9	<4.0	<3.9	3.8	4.4	4.5	4.3	4.1	4.3	3.8	3.3	(2.6)	(2.4)	2.1
20	2.3	2.2	2.0	(2.2)	2.4	2.8	3.5	4.5	5.1	5.4	5.1	5.7	5.6	5.6	6.0	6.0	5.8	5.0	5.0	5.2	4.7	3.1	2.1	2.1
21	2.3	2.1	2.1	2.2	2.0	2.8	3.7	4	4.3	4.3	5.1	5.2	5.2	5.3	5.3	5.1	4.9	4.7	4.5	4.7	(3.4)	3.4	2.8	2.5
22	2.5	2.5	2.3	2.0	2.0	3.0	4.1	5.0	5.1	5.0	5.3	5.5	5.6	5.3	5.8	5.4	5.4	5.4	5.6	5.2	4.4	3.7	3.3	3.2
23	2.5	2.5	2.1	(1.7)	(1.6)	2.9	3.8	4.5	4.7	5.6	5.5	4.9	5.2	5.2	5.4	5.5	5.5	5.0	5.2	4.7	(3.3)	(2.8)	2.1	2.3
24	[2.0]	1.8	(1.7)	A	A	2.7	3.3	<3.5	<3.7	<3.8	<4.0	[4.1]	<4.0	<4.0	4.2	4.5	4.7	4.2	4.2	4.0	2.9	2.4	(2.2)	[2.1]
25	(2.1)	[1.9]	1.8	A	A	2.7	3.4	3.7	<3.8	<3.9	4.4	4.4	4.5	4.8	4.8	4.5	4.9	4.8	4.5	A	A	2.9	[2.4]	(2.0)
26	(1.9)	1.9	1.9	1.8	[2.2]	2.7	<3.4	<3.5	<3.7	<3.9	4.2	(4.3)	4.4	4.3	4.3	4.6	4.6	4.7	5.4	5.7	5.2	4.3	3.6	2.9
27	2.8	2.2	(1.9)	(1.6)	(1.6)	2.7	3.1	<3.4	<3.6	<3.8	4.8	4.8	5.2	5.6	5.6	5.7	5.7	5.7	[6.2]	(6.0)	3.4	(2.9)	2.6	2.2
28	(2.4)	(2.2)	(2.1)	2.0	2.0	2.8	3.5	3.9	(4.2)	4.5	4.6	4.5	4.6	4.5	4.6	4.8	4.6	4.8	4.8	5.2	4.6	3.9	3.2	2.8
29	2.5	2.4	2.2	(2.0)	2.0	3.2	4.3	5.0	4.7	4.1	5.4	5.1	5.3	5.3	5.4	5.6	5.7	5.8	6.0	6.5	5.5	3.7	2.8	2.6
30	2.4	2.5	(2.3)	(2.1)	2.3	3.0	3.7	4.4	4.4	4.6	4.7	4.6	4.5	4.8	4.4	4.2	4.5	4.5	(4.8)	(5.0)	(4.1)	3.8	(2.8)	(2.5)
31																								
Median	2.3	2.2	2.0	2.0	2.0	2.7	3.5	4.0	4.4	4.6	4.8	4.8	5.2	5.3	5.2	5.1	5.0	4.8	4.8	5.0	4.0	3.2	2.7	2.5
Count	28	27	26	24	24	28	28	28	27	26	26	26	26	27	27	28	28	28	28	27	26	26	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 52

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'F1 (Characteristic), KM (Unit), April (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: E.J.W. J.W.P., F.J.M. J.J.S.

Calculated by: J.W.P., F.J.M. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								240	220 H	210 H	180 H	200 H	210	200 H	200	220	210 H	240	240					
2								240	240	240	230 K	230 K	220 K	230 K	(260) A K	[250] A K	240 K	260 K	250 K					
3								210 K	230 K	220 K	220 K	200 K	200 H K	210 K	230 K	240 K	230 K	A K	A K					
4								Q	240	210	210	210	190	200	220	230	230 H	(270) B	260					
5								240	230	230	220	210	190 H	210 H	210	220 H	230	230 H	260					
6								210	240	210 H	200 H	190 H	200 H	210	220	230 H	220 H	260	230					
7								240	210	210 H	210	190 H	210 H	190 H	200 H	250	220	230 H	B					
8							240	240 H	230	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	200 H	210 H	220 H	250	(250) S					
11							Q	230	220 H	C	C	C	C	C K	C K	240 H K	230 K	240 K	260 K					
12							Q K	(240) S K	230 H K	230 H K	200 H K	200 H K	200 H K	240 H K	230 K	230 K	220 H K	250 K	250 K					
13							Q K	230 K	220 K	210 K	190 K	240 H K	210 H	220	210 H	210 H	200 H	230	230					
14							250	230 H	220	210	200 H	200 H	210	190 H	190	210 H	210 H	210	240					
15							230	230	210	210	200 H	210	210	200	210 H	220	230	230	250					
16							240	220	200	200 H	220 H	220 H	210 H	200	200 H	210	220 H	230	240					
17							240	220	210	200 H	200 H	220	200	(230) H	210 H	210 H	230	230	250					
18							230	210	210	210	200 H	200 H	200	200 H	200 H	210	220	220	240					
19							240 K	220 K	210 K	200 K	210 H K	190 H K	200 H K	220 K	220 H K	220 H K	220 H K	220 K	240 K					
20							240	220 H	230 H	210 H	200 H	190 H	180 H	220	230 H	220 H	220	220	240					
21							230	220	210 H	190 H	180 H	180 H	(200) H	210	210 H	210 H	210 H	220	230					
22							230	220	210 H	210	200	190 H	200 H	220	230	220	200 H	220 H	230					
23							230	230 H	220	210	210	200	210	210 H	220 H	230	230	230	240					
24							A K	A K	210 H K	200 H K	200 K	200 K	210 H K	200 K	190 H K	210 K	230 H K	210 H K	240 H K					
25							210 K	200 H K	200 H K	200 K	200 K	230 K	200 H K	210 K	210 K	A K	A K	220 K	A					
26							230	210 H	200 H	180 H	210 H	210 H	210	200 H	240 H	220	230	230	230 H					
27							230	210	200 H	190 H	190 H	[200] A	210	220	(230) A	[220] A	220	A	A					
28							220	220	200	180 H	210	200 H	200	200	200	200	220	230	230					
29							210 H	210 H	210	180 H	180 H	190 H	190 H	180 H	180 H	220 H	230	220 H	240					
30							220 H	210 H	200	220	180 H	200	250 H	230	210 H	230	(240) A	[240] A	250					
31																								
Median							230	220	210	210	200	200	200	210	210	220	220	230	240					
Count							17	26	28	26	26	26	26	26	27	27	27	26	24					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 53

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D C

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), April (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: E. J. W., J. W. P., F. J. M., J. J. S.

Calculated by: J. W. P., F. J. M., J. J. S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	3.9 N	4.1 H	4.1 N	4.2	4.1 N	4.1 N	3.9	3.8	3.3	L					
2								L	3.6	3.9	3.9 K	4.0 K	4.0 K	4.0 K	4.0 K	3.8 K	3.7 K	3.3 K	L K					
3								L K	3.7 K	3.8 K	4.0 K	4.1 K	4.2 K N	4.1 K	4.0 K	3.9 K	3.5 K	A K	A K					
4								ⓘ	3.5	3.7	3.8	(4.0) S	4.0	4.0	3.8	3.8	3.7 N	3.3	L					
5								3.2	3.5	3.7	4.0	4.0	4.0 H	4.0 N	4.0	3.9 N	3.7	L	L					
6								L	L	3.9 H	4.0 N	4.0 N	4.2 N	4.3	4.2	4.1 N	(3.6) H	L	L					
7								3.3	3.6	3.9 H	4.1	4.2 H	4.1 H	4.0 N	3.9 N	3.9	3.8	3.7 H	13					
8							L	3.6 H	3.7	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	4.1 N	3.9 S	3.8 H	L	L					
11							Ø	L	3.8 H	ⓒ	ⓒ	C	C	C K	C K	4.1 N K	3.8 K	3.4 K	L K					
12							Ø K	L K	3.4 N K	3.7 N K	3.7 N K	3.9 S K	3.8 H K	3.9 K	3.7 K	3.6 K	3.5 H K	3.2 F K	L K					
13							Ø K	3.3 K	3.5 K	3.8 H K	3.9 H K	3.9 H K	4.0 N	(4.1) S	4.1 N	3.9 H	3.8 H	3.4	L					
14							L	3.4 H	3.7	4.1	4.2 H	4.3 H	4.3	4.3 N	4.1	4.1 N	3.8 N	(3.5) L	L					
15							L	L	3.7	4.0	4.1 N	4.3	4.4	4.2	4.2 N	4.1	3.9	3.5	L					
16							L	L	4.0	4.0 N	4.3 N	4.3 N	4.3 N	4.3	4.2 N	4.1	3.8 N	3.4	L					
17							L	3.6	3.8	3.9 N	4.0 N	4.1	(4.1) S	4.1 N	4.1 N	4.0 N	3.8	3.5	L					
18							L	3.4	(3.7) S	(3.9) S	4.2 N	4.3 N	4.2	4.1 N	4.1 N	4.0	3.7	3.5	L					
19							L K	3.4 S K	3.6 K	3.8 K	3.9 S K	4.0 H K	4.0 H K	3.9 K	3.8 K N	3.8 K N	3.7 N K	3.4 K	L K					
20							L	3.6 N	3.8 N	4.0 N	4.2 N	4.4 N	4.3 N	4.2	4.1 N	4.0 N	3.9	3.5	L					
21							L	L	3.8 N	3.7 N	3.9 N	4.0 N	4.2 N	4.1 N	4.0 N	3.9 N	3.8 N	L	L					
22							L	L	3.8 N	4.0	4.1	4.2 N	4.3 N	4.2	4.2	4.1	4.0 N	3.6 N	L					
23							L	3.5 N	3.8	4.0	4.1	4.1	4.2	4.2 N	4.1 N	3.9	3.7	3.4	L					
24							A K	3.4 K	3.6 H K	3.7 H K	3.9 K	4.0 K	4.1 H K	4.0 K	4.0 H K	3.7 K	3.7 H K	3.4 N K	L K					
25							L K	3.3 H K	3.6 K	3.8 K	4.0 K	4.0 K	4.1 H K	4.1 K	4.0 K	[3.8] A K	(3.7) E K	3.4 K	A					
26							3.2	3.4 H	3.6 H	3.8 N	4.0 H	4.0 H	4.0	4.1 N	4.0 N	3.9	3.7	3.5	3.0 H					
27							L	3.2 S	3.5 H	3.7 H	3.9 N	[4.0] A	4.2	4.2 S	4.2	4.1	3.9	A	A					
28							L	3.4	3.5	3.8 H	4.0	4.1 H	4.1	4.1 H	4.0	4.0 H	3.7	3.5	L					
29							L	3.5 H	3.8	4.1 H	4.1 H	4.2 H	4.2 H	4.2 N	4.2 N	4.1 N	3.9	3.6 H	L					
30							L	3.2 H	3.8	3.9	4.0 N	4.2	4.1 H	4.1	4.0	4.0	3.8 H	3.5	3.0					
31																								
Median							—	3.4	3.7	3.9	4.0	4.1	4.2	4.1	4.1	3.9	3.8	3.4	—					
Count							1	17	26	26	26	26	26	26	27	28	28	22	2					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 54

Central Radio Propogation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), April (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W. J.W.P., F.J.M. J.J.S.

Calculated by: J.W.P., F.J.M. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								120 S	110	110	110 H	110 H	110 H	110	110	110	110 H	120	S					
2								130	110	110	110 K	110 K	110 K	110 K	110 K	110 K	110 K	110 K	S K					
3								(120) S K	110 K	110 K	110 K	110 K	110 K	110 K	110 K	110 K	110 K	120 K	A K					
4								(130) B	120	110	110	110	110	110	110	110	(110) B	120	S					
5								(110) S	110	110 H	110 H	110 H	110	110	110	110 H	110 S	120	S					
6								A	110	110	110	110	110	110	110	110	110	120	S					
7								S	110	110 H	110 H	110	100	100	100	B	B	(120) B	B					
8							S	120	110	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	(110) S	(120) S	110	120	S					
11							130	[120] S	110	C	C	C	C	C K	C K	100 K	110 K	110 K	110 K					
12							130 K	110 K	(110) S K	(120) S K	(110) S K	110 K	100 K	100 S K	(100) S K	(120) S K	110 K	120 S K	130 K					
13							B K	110 H K	110 K	100 K	100 H K	(130) A K	(130) A	100 H	110 H	100 H	110 H	110	B					
14							120 S	110	110	110	110	100	100	(120) A	110	100 H	110	120 H	130					
15							130 H	110 H	110 H	110	100	110	110 H	110 H	100 H	110	110	110	S					
16							120	110	110	110	110	110	100	100	110	110	110	110 H	130 S					
17							S	110	110 H	110	110 H	100	100	100	100 H	110 H	110 H	110	120					
18							130	110	110	110	100	110	100	100	110	110 H	110	110 H	110 H					
19							(120) S K	110 K	110 K	100 K	110 K	100 K	110 K	110 K	110 H K	110 H K	110 H K	110 H K	(120) S K					
20							S	110	100	110	110	100	100	100	110	100	100	110 H	(110) S					
21							(120) S	110 H	100	100	100	100	100	100	[100] A	100	110	110 H	S					
22							130	110 H	100 H	100	100	100	100	100	100	100	110	110	(110) S					
23							(130) S	110 H	110 H	100	100 H	100	110	100 H	100 H	100	100	110 H	(130) S					
24							S K	110 K	110 K	110 K	100 K	100 K	[100] A K	100 K	100 H K	100 K	100 K	110 K	(130) S K					
25							S K	110 K	100 K	100 K	100 K	100 K	100 K	110 K	100 K	(100) A K	100 K	(130) S K	A					
26							(130) S	110	110	110	100	100	100 H	100	100 H	100	110 H	110	(130) S					
27							120	110	110 H	110	110	100	100	100	100	100	110	110	(120) S					
28							(130) S	110	110	110	100	110	100 H	110 H	110 H	110 H	110	110	(120) S					
29							130	(110) A	110	100	110	100	100	100 H	100 H	110 H	110 H	110	120					
30							120	110	110	110	110	100	100	100	100	110	110	110	(120) S					
31																								
Median							130	110	110	110	110	100	100	100	110	110	110	110	(120)					
Count							15	26	28	26	26	26	26	26	27	27	27	28	16					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 55

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C

foE (Characteristic), Mc (Unit), April (Month), 1954

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: E. J. W., J. W. P., F. J. M., J. J. S.

Calculated by: J. W. P, F. J. M., J. J. S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								1.7	2.3	2.7	2.9	3.1	(3.1)	[3.0]	3.0	2.7	2.5	2.2	3					
2								1.9	2.3	2.6	3.0	3.0	3.1	3.1	3.1	2.9	2.5	2.1	3					
3								(1.9)	2.4	2.5	2.5	3.0	3.1	3.1	3.0	[2.8]	2.4	(2.1)	A					
4								1.8	2.5	2.5	2.8	[3.0]	(3.1)	3.0	[2.9]	2.7	2.9	2.0	3					
5								2.1	2.3	2.5	(2.6)	2.9	2.8	2.8	[2.8]	2.7	(2.6)	2.2	3					
6								A	2.5	(2.8)	(2.8)	2.9	3.1	3.1	(3.0)	2.6	2.8	2.3	3					
7								A	2.5	2.7	(2.8)	[2.8]	(2.9)	(3.1)	(3.0)	E	2.4	2.2	A					
8							S	2.0	2.4	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	2.7	(2.7)	2.5	2.3	3					
11							S	S	S	C	C	C	C	C	2.8	2.7	2.6	(2.2)	2.6					
12							(1.8)	2.0	[2.4]	2.8	(2.9)	(3.0)	[3.0]	(3.0)	2.9	2.7	2.7	2.5	3					
13							B	2.0	2.4	2.5	2.7	3.0	3.1	3.0	3.0	2.9	2.8	2.6	B					
14							1.7	2.0	2.4	[2.6]	2.7	3.2	[3.2]	3.2	3.1	3.0	[2.6]	2.2	1.7					
15							(1.6)	2.2	2.5	2.8	2.9	3.2	3.2	3.1	3.1	A	A	A						
16							(1.6)	(2.2)	(2.6)	(2.8)	[3.0]	(3.3)	[3.2]	3.2	(2.7)	(2.9)	2.7	2.1	1.7					
17							S	(2.0)	2.3	2.8	2.9	3.1	[3.2]	(3.2)	3.1	2.9	2.7	[2.2]	(1.7)					
18							1.7	2.1	2.5	2.6	(2.5)	3.1	3.2	3.0	3.1	2.9	2.7	2.3	1.6					
19							S	2.1	2.4	2.8	(2.9)	2.9	3.1	3.0	3.0	2.8	2.7	2.2	1.8					
20							S	2.1	2.5	2.7	A	A	3.1	3.1	A	A	A	2.3	1.6					
21							1.6	1.9	2.3	(2.8)	A	A	(3.2)	3.1	[3.3]	2.8	2.5	2.2	3					
22							1.8	2.2	2.6	2.8	3.0	3.0	3.2	3.1	3.1	2.9	2.7	2.3	(1.7)					
23							1.7	2.1	2.4	2.8	2.8	[3.0]	3.1	3.1	3.1	2.9	[2.5]	2.1	1.8					
24							S	2.1	2.4	2.7	A	A	3.1	3.0	3.0	2.9	2.5	2.3	1.7					
25							S	2.0	2.5	[2.7]	(2.9)	A	A	3.0	A	A	2.5	2.3	A					
26							1.8	[2.2]	2.5	2.8	[2.7]	(3.0)	3.2	[3.2]	3.1	2.9	2.6	[2.2]	1.7					
27							1.7	2.1	2.4	2.7	(2.8)	2.8	(2.9)	A	A	H	2.7	2.3	(1.7)					
28							1.7	2.2	2.5	2.7	2.9	(3.0)	(3.1)	3.1	3.0	2.9	2.6	2.3	1.8					
29							1.6	2.2	2.5	2.8	A	A	3.1	3.1	3.1	2.9	2.7	2.3	1.7					
30							1.7	2.3	2.7	3.0	A	A	3.2	3.3	3.2	3.0	2.8	2.4	1.7					
31																								
Median							1.7	2.1	2.4	2.7	2.9	3.0	3.1	3.1	3.0	2.9	2.6	2.2	1.7					
Count							13	25	27	26	21	20	25	25	24	23	22	24	16					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 56

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Es (Characteristic), Mc, Km (Unit) April (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: E.J.W. J.W.P. F.J.M. J.J.S.

Lat 38.7°N, Long 77.1°W 75°W Mean Time

Calculated by: J.W.P, F.J.M. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	2.5 110	E	2.5 110	E	E	E	2.0 130	3.5 120	G	G	3.8 130	3.9 120	3.5 110	3.2 130	3.0 130	2.8 130	G	3.3 130	2.8 120	3.5 120	2.4 120	E	E
2	E	E	E	E	E	2.2 130	1.7 120	2.1 130	G	G	G	G	3.5 130	3.8 130	4.5 130	4.5 130	G	G	G	E	E	E	E	E
3	4.4H 120	3.8H 110	4.2Y 120 H	2.2 130	2.4 130	E	E	2.2 120	G	2.6 110	2.8 110	G	G	G	G	G	G	4.7 130	5.6 120	4.7 110	3.2Y 110 H	E	E	E
4	E	E	E	E	E	3.9 120	1.7 120	2.1 120	G	G	G	2.8 110	G	G	4.4Y 110	G	G	G	1.8 130	E	E	E	E	E
5	E	E	E	E	E	E	E	G	G	2.8 120	3.2 120	7.0Y 120	2.9 120	G	G	G	G	G	2.1 130	1.8 120	2.6 120	2.5 120	E	E
6	E	E	E	E	E	E	E	3.0Y 110	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
7	E	E	E	E	E	E	E	2.1 120	G	3.7 120	3.9 120	2.9 120	G	G	G	B	B	G	B	E	2.9 120	E	E	E
8	E	E	E	E	E	E	G	2.2 130	2.5 120	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	(3.1)3 120	G	G	G	S	E	E	E	E	E
11	E	E	E	3.7 100	3.3 120	E	G	1.7 110	5.8 110	G	C	C	C	C	C	G	G	G	G	E	E	E	S	S
12	S	S	E	E	7.0 100	3.4 100	(5.0)3 110	G	G	G	G	9.2 100	7.6 100	G	G	2.9 120	G	G	G	E	E	E	E	E
13	E	E	E	E	E	E	B	G	2.6 130	3.7 120	3.2 100	2.7 110	2.7 100	G	2.0 100	G	G	2.4 130	B	E	E	2.4 110	E	E
14	E	E	E	E	E	3.0 110	G	G	G	3.0 110	3.3 110	G	4.4 100	3.9 100	4.8 100	G	3.5 110	G	G	E	E	3.5 110	3.2 110	E
15	E	E	E	4.1Y 120	E	E	G	G	2.7 130	4.0 110	4.0 110	3.3 110	G	3.9 110	G	3.8 110	3.5 110	2.6 110	2.2 100	2.0 100	E	E	3.0 110	(2.7)3 100
16	2.7 110	2.4 110	E	6.6 140	2.3 120	E	1.8 140	3.0 110	4.3 110	4.0 110	3.7 110	4.6 120	3.9 110	5.4 100	3.2 120	3.7 100	3.5 100	3.5 130	3.2 120	E	2.4 130	2.7 130	E	E
17	E	E	E	E	E	2.3 120	2.0 120	2.9 120	3.2H 120	4.5 100	G	G	4.0 110	5.0 100	3.5 130	G	3.9 110	3.6 110	G	E	E	E	E	E
18	E	2.4 110	3.0 110	3.4 110	2.8 120	3.5 110	4.5 100	3.5 120	4.9 110	5.8 110	5.0 100	3.1 110	3.2 110	G	G	G	G	G	G	E	E	E	2.9 100	E
19	E	E	E	E	E	E	G	3.2 120	4.0 110	3.4 110	4.0 110	3.1 110	G	G	G	G	G	G	G	E	E	E	E	E
20	E	E	E	E	E	E	G	G	7.8 110	2.9 120	3.8 110	3.9 110	4.9 110	5.0 110	3.5 110	3.0 100	2.6 110	G	G	E	E	E	E	E
21	E	E	E	E	E	E	G	2.2 110	3.7 110	3.6Y 120	3.2H 110	3.3 100	9.0Y 100	G	3.1 100	G	G	G	2.1Y 130	1.8 130	2.4Y 120	2.5 110	E	E
22	E	E	E	E	E	E	G	(3.0)3 120	3.5 120	4.0 110	3.8 110	G	G	G	G	G	G	G	G	E	E	3.9 110	3.4 110	3.9 110
23	E	2.3 100	E	E	E	E	G	G	G	G	2.9 110	2.8 110	G	G	G	G	4.0 100	G	2.4 130	E	E	E	E	2.6 120
24	3.5 110	5.4 110	3.0 110	2.9 110	4.0 120	3.2 120	3.2 120	7.4 110 H	5.0 110	4.0 110	3.8 110	7.0 110	3.6 100	G	4.2 120	5.0 110	4.3 120	G	G	E	E	E	E	1.9 120
25	2.9 110	E	2.2 120	3.9 120	3.1 110	4.4 110	1.7 110	7.0 110	3.5 110	3.7 110	3.3 110	3.4 110	3.1 110	G	3.4 110	6.0 100	6.4 110	3.3Y 130	3.8 130	4.6 120	9.0 110	7.6 110	4.2 110	E
26	E	E	E	E	E	E	G	2.5 130	G	G	4.0 100	3.4 110	3.5 100	3.5 100	(3.6)3 100	G	G	3.3 110	G	E	E	E	E	E
27	E	E	E	E	E	E	G	3.1 130	2.6 120	G	3.4 110	5.8 100	6.1H 110	7.8 110	6.0H 110 H	5.0 110	G	5.0 120	7.0 110	5.8 110	4.3 110	2.4 110	2.5 100	E
28	E	E	E	E	E	E	G	G	3.8 110	G	3.1 120	3.6S 110	3.5 110	G	G	G	2.9 120	G	2.3 130	E	E	2.8 110	E	E
29	E	E	E	E	E	E	1.9 130	7.1S 110	3.3 110	G	3.4 110	3.1 110	G	G	G	G	3.0 130	3.7 120	3.0 120	E	E	2.6 110	E	E
30	E	E	E	E	E	E	3.4 120	3.7 110	3.1 120	G	7.2Y 110	3.9 110	G	G	G	G	3.1 130	5.8 120	4.9 110	3.1H 110 H	4.3 110	4.3 100	E	E
31																								
Median	* *	* *	* *	* *	* *	* *	* *	2.2	2.9	2.8	3.2	3.2	3.2	* *	2.0	* *	* *	* *	* *	* *	* *	* *	* *	* *
Count	27	27	28	28	28	28	28	28	28	26	26	26	26	26	27	28	28	28	27	28	28	28	27	27

** MEDIAN fEs LESS THAN MEDIAN foE, OR LESS THAN LOWER FREQUENCY LIMIT OF RECORDER

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 57

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(M1500)F2 (Characteristic), _____ (Unit), April (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: E.J.W. J.W.P., F.J.M. J.J.S.

Lat. 38.7°N, Long. 77.1°W 75°W Mean Time

Calculated by: J.W.P, F.J.M. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(2.1)F S	(2.1)F S	S	S	(2.3)F S	(2.2)F S	2.3 F	2.4	2.3	2.2	2.1	2.1	2.0	2.1	2.2	2.2	2.3	2.2	2.1	2.2	2.0	2.0	2.0	2.0
2	2.1	2.2	2.2	2.2	2.2	2.1	2.4 H	2.4	2.3	2.1	1.8 K	1.7 K	1.7 H K	1.9 K	G K	2.0 K	2.0 K	2.0 K	2.0 K	2.0 K	2.2 K	2.3	2.2	2.0
3	2.1	A	S	J S	J S	J S K	2.3 K	2.3 K	G K	2.0 K	2.3 K	2.1 K	2.1 K	2.2 K	2.0 K	2.0 K	2.2 K	2.2 K	A K	(2.2) S K	(2.1) S K	(2.2) P S	(2.1) F K	(1.9) P F
4	(2.0) F S	(1.9) S K	S K	2.0 K	J S K	J S K	2.3	2.3	G	G	G	(1.7) H	(1.7) H	1.7	2.0	2.0	2.0	2.0	2.2	2.0	2.1	2.1	2.0	2.0
5	2.0	S	S	S	J S	J S	(2.1) S	1.9	1.8	2.1	1.8	2.0	2.1	2.0	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.2 F	2.1 F	(2.0) S F
6	(2.0) F	(2.1) F S	S	S	J S	J S	(2.3) F S	(2.1) H	2.5	2.2	2.2	2.2 H	2.1	2.0	2.1	2.2	2.1	2.3	2.3	2.2 F	2.2	2.1	(2.0) F S	2.0
7	(2.1) F S	2.1	2.0	(2.1) F S	(2.0) F S	2.0 F	2.4	(2.2) S	1.9	2.3 H	2.3 S	(2.1) P	1.9	1.9	2.0	2.0	2.1	2.3	2.2	2.2	2.2	2.1	2.1	2.0
8	2.1	2.1	2.1 F	2.2 F	(2.2) F S	(2.1) F	2.4	G	2.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	2.0	2.2	2.2	2.2	2.2	2.3	2.2	2.1	2.0	2.0 S
11	2.0	(2.1) S	J S	(2.1) S	(2.2) S F	(2.1) S P	2.4	2.3	2.4	C	C	C	C	C K	C K	1.9 K	2.0 K	2.1 K	2.1 K	2.2 K	2.2 K	1.9 K	S K	S K
12	S K	S K	J S K	(2.0) S P	S K	S K	(2.2) F K	2.3 F K	G K	G K	G K	G K	G K	G K	G K	G K	G K	1.8 K	(2.0) S K	(2.2) S P	K (2.2) F S	2.0 K	2.0 F K	E K
13	E K	E K	E K	E K	E K	E K	2.2 K	G K	1.6 K	G K	G K	1.6 K	2.0	2.0	2.0	2.2	2.1	2.1	2.1 S	2.0	2.1	2.1	1.9	1.9
14	1.9 F	2.0 F	2.0 F	2.2 F	(2.0) F	(2.1) F	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	1.9	2.0	2.2 F	2.0
15	2.1 F	2.0	2.1 F S	(2.1) F S	(2.1) F	(2.2) F	2.3	2.3	2.1	2.3	2.1 H	2.0	2.1	2.2	2.2	2.0	2.2	1.9	2.1	2.2	2.2	(2.3) F S	2.2	1.9
16	1.9	2.0	2.0	2.0	1.9 F	2.2	2.2 H	2.2 H	2.1 H	(2.4) S	2.2 H	2.1 H	2.3	2.2	2.1	2.1	2.2	2.2	2.1	(2.3) S	2.2	2.2	2.1	2.1
17	1.9	(1.9) S	2.0	2.1	2.1	(2.2) S	2.3	2.2	2.3	2.1	2.0 H	1.9	1.9	1.9	2.1	2.1	2.1	2.3	2.2	2.1	2.2	2.3	2.0	2.0
18	1.9	(2.1) S	1.9	2.0 F S	2.0	2.1	2.2 H	2.2	(2.0) S	2.2	2.0	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	(2.3) S	(2.3) -	1.1
19	1.9	2.0 S	2.0	(2.2) S	2.2 S	2.1	2.2 K	1.8 K	G K	G K	G K	G K	G K	G K	1.8 K	1.9 K	2.0 K	2.0 K	2.2 K	2.2 K	2.1 K	2.1	(2.1) F S	1.7
20	2.1	2.1 F	(2.1) F S	2.2 F	2.1 F	2.2	2.4	2.2	2.2	2.2	2.1	1.9 H	2.2	2.1	2.0	2.1	2.2	2.2	2.2	2.2	2.3	2.3	1.9	1.9
21	1.9	2.0	2.1	(2.1) F S	2.1	2.1	2.2	2.4	S	(2.2) P H	1.9	2.2	1.9 H	2.1	2.1	2.1	2.3	2.2	2.2	2.2	(2.3) P S	(2.0) P S	(2.0) P S	2.1
22	2.0	2.0	2.2	2.1	(2.1) P S	(2.2) P S	2.3 H	2.3	2.3 S	2.2	2.2	2.2	2.0	2.2	2.2	2.2	2.3	2.2	2.3	2.2	2.2	2.0	1.7	2.0
23	2.0	2.0	2.1	(2.2)	2.0	2.2 S	2.4	2.1 H	2.0	2.2	2.1	2.2	2.1	2.0	1.9	1.9	2.1	2.1	2.2	2.3	2.3 F	2.2	2.2 F	(2.1) S F
24	A	A	A	2.1	A	A	2.3 K	G K	G K	G K	1.9 K	G K	G K	1.7 K	1.7 K	1.8 K	2.1 K	2.2 K	2.1 K	2.2 K	2.1 K	2.0 K	2.0	(2.1) S
25	(1.9) S	2.1 S	2.1	A S	A	2.3	2.3 K	2.2 K	G K	G K	1.8 K	1.9 K	1.8 K	2.0 K	2.0 K	2.0 K	2.0 K	2.2 K	2.3	2.2	A S	(2.2) S	S A	2.0 S
26	S	(2.0) S	(2.1) S	(2.2) S	(2.0) S	S	G	2.1	G	G	G	1.9	1.8	1.9	1.9	1.8	2.0	2.0	2.0	2.1	2.1	2.0	2.1	1.9
27	2.0	2.0	2.0 S	2.0	J S	2.1	2.4	G	G	G	1.8 S	2.0	2.0	2.1	2.1	2.1	2.2	2.1	A	2.3	2.2	2.2	2.1 F	2.1 F S
28	(2.2) P S	(2.2) F S	2.0 F	2.0 F	(2.1) F	2.3 F	2.3	G	2.3	1.9 S	2.0	2.1	2.1	1.9	1.8	2.0 S	2.2	2.1	2.2	2.1	2.2	2.2	2.1 F	2.0 F S
29	(2.2) F	2.1 F	2.2 F S	(2.2) F S	(2.3) F S	2.3 F	2.3	2.4 H	2.4	2.3	2.3	2.2	2.2	2.2	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.3	2.1
30	2.0	2.0 F S	(2.1) F S	(2.1) F S	2.0 F S	2.3	2.3 H	2.3	(2.2) S	2.2	1.9 H	1.9 H	1.6	(1.8) S	1.9	1.9	2.0	2.0	2.1	(2.1) S	(2.2) S P	(2.2) S P	(2.1) S F	(1.9) F S
31																								
Median	2.0	2.0	2.1	2.1	(2.1)	2.2	2.3	2.2	2.1	2.2	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.0
Count	24	23	19	22	19	20	28	27	27	26	26	26	26	26	27	28	27	28	24	28	27	27	24	24

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 58

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ____ (Unit), April (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W — 75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W. J.W.P., F.J.M. J.J.S.

Calculated by: J.W.P., F.J.M. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(3.1)$^{F}_{S}$	(3.1)$^{F}_{S}$	J^{S}	J^{S}	(3.3)$^{F}_{S}$	(3.2)$^{F}_{S}$	3.3^{F}	3.5	3.4	3.3	3.1	3.1	3.0	3.1	3.3	3.3	3.4	3.3	3.1	3.2	3.0	3.0	3.0	3.0
2	3.1	3.2	3.3	3.2	3.3	3.1	3.5^{H}	3.5	3.4	3.1	2.8^{K}	2.6^{K}	2.6$^{H}_{K}$	2.8^{K}	G^{K}	3.0^{K}	3.0^{K}	2.9^{K}	3.0^{K}	3.0^{K}	3.2^{K}	3.3	3.2	3.0
3	(3.1)$^{F}_{S}$	A	S	J^{S}	J^{S}	J$^{S}_{K}$	3.3^{K}	3.4^{K}	G^{K}	3.0^{K}	3.3^{K}	3.1^{K}	3.1^{K}	3.2^{K}	3.0^{K}	3.0^{K}	3.2^{K}	3.2^{K}	A^{K}	(3.2)$^{S}_{K}$	(3.1)$^{S}_{K}$	(3.2)$^{P}_{S}$	(3.0)$^{F}_{K}$	(2.9)$^{P}_{F}$
4	^{K}(2.9)$^{F}_{S}$	(2.7)$^{S}_{K}$	J$^{S}_{K}$	3.0^{K}	J$^{S}_{K}$	J$^{S}_{K}$	3.3	3.3	G	G	G	(2.6)^{H}	(2.6)^{H}	2.6	3.0	3.0	3.0	3.0	3.2	3.0	3.1	3.1	3.0	3.1
5	3.0	J^{S}	J^{S}	J^{S}	J^{S}	J^{S}	(3.1)^{S}	2.8	2.7	3.1	2.7	3.0	3.2	3.0	3.2	3.1	3.2	3.2	3.3	3.2	3.1	3.2^{F}	3.0^{F}	(3.0)$^{S}_{F}$
6	(3.0)^{F}	(3.1)$^{F}_{S}$	J^{S}	S	J^{S}	J^{S}	(3.3)$^{F}_{S}$	(3.1)^{H}	3.6	3.3	3.3	3.2^{H}	3.1	3.0	3.1	3.2	3.2	3.3	3.3	3.2^{F}	3.3	3.1	(3.0)$^{F}_{S}$	3.0
7	(3.1)$^{F}_{S}$	3.1	3.0	(3.0)$^{F}_{S}$	(3.0)$^{F}_{S}$	3.0^{F}	3.4	(3.2)^{S}	2.9	3.3^{H}	3.4^{S}	(3.1)^{P}	(2.9)^{P}	2.9	3.0	3.0	3.1	3.3	3.3	3.2	3.3	3.2	C	3.0
8	3.2	3.1	3.1^{F}	3.2^{F}	(3.3)$^{F}_{S}$	(3.1)^{F}	3.4	G	3.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	3.0	3.2	3.2	3.2	3.2	3.3	3.3	3.1	3.0	3.0^{S}
11	3.0	(3.1)^{S}	J^{S}	(3.2)^{S}	(3.2)$^{S}_{P}$	(3.1)$^{S}_{P}$	3.5	3.4	3.5	C	C	C	C	C^{K}	C^{K}	2.8^{K}	2.9^{K}	3.1^{K}	3.1^{K}	3.2^{K}	3.3^{K}	2.9^{K}	S^{K}	S^{K}
12	S^{K}	S^{K}	J$^{S}_{K}$	3.0^{K}	S^{K}	S^{K}	(3.2)$^{F}_{K}$	3.3$^{F}_{K}$	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	(2.7)^{K}	(3.0)$^{S}_{K}$	(3.2)$^{S}_{P}$	^{K}(3.2)$^{F}_{S}$	3.0^{K}	3.0$^{F}_{K}$	E^{K}
13	E^{K}	E^{K}	E^{K}	E^{K}	E^{K}	E^{K}	3.2^{K}	G^{K}	2.4^{K}	G^{K}	G^{K}	2.4^{K}	3.0	3.0	3.0	3.2	3.1	3.2	3.1	3.0	3.1	3.1	2.9	2.8
14	2.9^{F}	3.0^{F}	3.0^{F}	3.3^{F}	(3.0)^{F}	(3.1)^{F}	3.4	3.4	3.3	3.2	3.3	3.2	3.1	3.2	3.1	3.3	3.2	3.2	3.3	3.2	2.9	3.0	3.2^{F}	3.0
15	3.1^{F}	3.0	3.1$^{F}_{S}$	(3.1)$^{F}_{S}$	(3.1)^{F}	(3.2)^{F}	3.3	3.3	3.2	3.3	3.1^{H}	3.0	3.1	3.2	3.2	3.0	3.2	2.9	3.1	3.2	3.3	(3.4)$^{F}_{S}$	3.2	2.9
16	2.9	2.9	3.0	3.0	2.8^{F}	3.2	3.2^{H}	3.2^{H}	3.1^{H}	(3.5)^{S}	3.3^{H}	3.1^{H}	3.3	3.3	3.1	3.1	3.2	3.2	3.2	(3.3)^{S}	3.3	3.2	3.1	3.1
17	2.9	(2.9)^{S}	2.9	3.1	3.1	(3.3)^{S}	3.4	3.2	3.8	3.2	3.0^{H}	2.9	2.9	2.9	3.1	3.1	3.2	3.3	3.2	3.1	3.2	3.3	3.0	3.0
18	3.9	(3.1)^{S}	2.9	3.0$^{F}_{S}$	2.9	3.1	3.2^{H}	3.3	(3.0)^{S}	3.3	3.0	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.2	(3.4)^{S}	(3.3)^{S}	2.9
19	2.8	3.0^{S}	3.0	(3.2)^{S}	3.2^{S}	3.1	3.2^{K}	2.7^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	G^{K}	2.7^{K}	2.8^{K}	3.0^{K}	3.0^{K}	3.2^{K}	3.3^{K}	3.1^{K}	3.1	(3.1)$^{F}_{S}$	2.9
20	3.1	3.1^{F}	(3.1)$^{F}_{S}$	3.2^{F}	3.1^{F}	3.2	3.4	3.3	3.3	3.3	3.1	2.8^{H}	3.2	3.2	2.9	3.1	3.2	3.2	3.2	3.2	3.3	3.4	2.9	2.8
21	2.9	3.0	3.1	(3.1)$^{F}_{S}$	3.1	3.1	3.2	3.5	J^{S}	(3.3)$^{P}_{H}$	2.9	3.3	2.9^{H}	3.1	3.2	3.2	3.3	3.3	3.2	3.2	(3.3)$^{P}_{S}$	(3.0)$^{P}_{S}$	(3.0)$^{P}_{S}$	3.1
22	3.0	3.0	3.2	3.1	(3.1)$^{P}_{S}$	(3.3)$^{P}_{S}$	3.3^{H}	3.4	3.4^{S}	3.2	3.2	3.2	3.0	3.3	3.2	3.3	3.3	3.2	3.3	3.4	3.2	3.0	2.9	3.0
23	3.0	3.0	3.1	(3.2)^{S}	(3.0)^{S}	3.2^{S}	3.4	3.1^{H}	3.0	3.3	3.1	3.3	3.1	3.0	2.9	2.9	3.1	3.1	3.2	3.4	3.3^{F}	3.2	3.2^{F}	(3.1)$^{F}_{S}$
24	A	A	A	3.1	A	A	3.3^{K}	G^{K}	G^{K}	G^{K}	2.8^{K}	G^{K}	G^{K}	2.6^{K}	2.6^{K}	2.8^{K}	3.2^{K}	3.2^{K}	3.1^{K}	3.2^{K}	3.1^{K}	3.0^{K}	3.0	(3.1)^{S}
25	(2.9)^{S}	3.1^{S}	3.1	A^{S}	A	3.3	3.3^{K}	3.2^{K}	G^{K}	G^{K}	2.7^{K}	2.8^{K}	2.7^{K}	3.0^{K}	3.0^{K}	3.0^{K}	3.0^{K}	3.2^{K}	3.3	3.2	A^{S}	(3.2)^{S}	S^{A}	S
26	S	(2.9)^{S}	(3.1)^{S}	(3.2)^{S}	(3.0)^{S}	S	G	3.2	G	G	G	2.9	2.8	2.8	2.9	2.7	3.0	3.0	3.0	3.1	3.1	3.0	3.1	2.9
27	3.0	3.0	3.0^{S}	3.0	J^{S}	3.1	3.5	G	G	G	2.7^{S}	3.0	3.0	3.2	3.1^{V}	3.2	3.2	3.1	A	3.3	3.2	3.2	3.1^{F}	3.1$^{F}_{S}$
28	(3.3)$^{F}_{S}$	(3.2)$^{F}_{S}$	3.0^{F}	3.0^{F}	(3.1)^{F}	3.3^{F}	3.3	G	3.4	2.9	3.0	3.1	3.1	2.9	2.8	3.0^{S}	3.3	3.1	3.2	3.1	3.3	3.2	3.2^{F}	3.0$^{F}_{S}$
29	(3.2)^{F}	3.1^{F}	3.2$^{F}_{S}$	(3.3)$^{F}_{S}$	(3.3)$^{F}_{S}$	3.4^{F}	3.3	3.4^{H}	3.5	3.3	3.4	3.2	3.2	3.2	3.0	3.1	3.0	3.2	3.3	3.3	3.4	3.5	3.3	3.1
30	3.0	3.0$^{F}_{S}$	(3.1)$^{F}_{S}$	(3.2)$^{F}_{S}$	3.0$^{F}_{S}$	3.3^{H}	3.4^{H}	3.4	(3.2)^{S}	3.2	2.8^{H}	2.8^{H}	2.3	(2.7)^{S}	2.8	2.9	2.9	3.0	3.1	(3.1)^{S}	(3.2)$^{S}_{P}$	(3.2)$^{S}_{P}$	(3.1)$^{S}_{E}$	(2.8)$^{F}_{S}$
31																								
Median	3.0	3.0	3.1	3.1	(3.1)	3.2	3.3	3.2	3.1	3.2	3.0	3.0	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.0	3.0
Count	24	23	19	22	19	20	28	28	27	26	26	26	26	26	27	28	28	25	26	28	27	28	26	25

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 59

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(M3000)F1 (Characteristic), (Unit) April (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: E.J.W. J.W.P., F.J.M. J.J.S.

Calculated by: J.W.P., F.J.M. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	3.7^{H}	3.8^{H}	3.7^{H}	3.7	3.6^{H}	3.6	3.7	3.7^{H}	3.7	L					
2								L	3.6	3.6	3.7^{K}	3.7^{H}	3.7^{K}	3.7^{K}	3.6^{K}	3.5^{B}	3.5^{K}	3.4^{K}	L^{K}					
3								L^{K}	3.4^{K}	3.6^{K}	3.7^{K}	3.6^{K}	3.7$^{H}_{K}$	3.7^{K}	3.5^{B}	3.7^{K}	3.7^{K}	A^{K}	A^{K}					
4								Q	3.5	3.7	3.8	(3.8)^{S}	3.8	3.7	3.7	3.6	3.4^{H}	3.4	L					
5								3.4	3.8	3.7	3.8	3.9	3.8^{H}	3.8^{H}	3.7	3.6^{H}	3.6	L	L					
6								L	L	3.9^{H}	3.9^{H}	4.0^{H}	3.7^{H}	3.8	3.5^{-}	3.6^{H}	(3.7)^{H}	L	L					
7								3.5^{-}	3.9	3.6^{H}	3.7	3.8^{H}	3.9^{H}	3.8^{H}	3.7^{H}	3.6	3.5	3.5^{H}	B					
8							L	3.4^{H}	3.6	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	3.6^{H}	(3.7)^{S}	3.6^{H}	L	L					
11							Q	L	3.7^{H}	C	C	C	C	C^{A}	C^{A}	3.4$^{H}_{K}$	3.6^{K}	3.5^{B}	L^{K}					
12							Q^{A}	L^{A}	3.5$^{-H}_{K}$	3.8$^{H}_{A}$	3.9$^{H}_{K}$	3.9$^{S}_{A}$	3.8$^{H}_{A}$	3.7^{A}	3.8^{A}	3.7^{A}	3.5$^{H}_{K}$	3.4$^{E}_{K}$	L^{K}					
13							Q^{K}	3.7^{A}	3.8^{A}	3.4$^{H}_{A}$	4.0^{K}	3.8$^{H}_{K}$	3.8^{H}	(3.9)^{S}	3.6^{H}	3.7^{H}	3.6^{H}	3.7	L					
14							L	3.6^{H}	3.7	3.7	3.7^{H}	3.8^{H}	3.8	3.8^{H}	3.9	3.7^{H}	3.7^{H}	(3.5)^{L}	L					
15							L	L	3.7	3.6	3.9^{H}	3.7	3.7	3.7	3.7^{H}	3.4	3.5^{-}	3.5^{-}	L					
16							L	L	3.6	3.8^{H}	3.7^{H}	3.8^{H}	3.6^{H}	3.8	3.7^{H}	3.5^{-}	3.6^{H}	3.6	L					
17							L	3.5^{-}	3.6	3.8^{H}	4.0^{H}	3.9	(3.9)^{S}	3.8^{H}	3.7^{H}	3.5^{-H}	3.5^{-}	3.6	L					
18							L	3.7	(3.8)^{S}	(3.8)^{S}	3.8^{H}	3.7^{H}	3.8	3.8^{H}	3.6^{H}	3.5^{-}	3.7	3.6	L					
19							L^{A}	3.4$^{S}_{K}$	3.7^{K}	3.5^{K}	3.9$^{S}_{A}$	4.0$^{H}_{K}$	4.0$^{H}_{K}$	3.8^{K}	3.8$^{H}_{A}$	3.7$^{H}_{K}$	3.7$^{H}_{K}$	3.6^{K}	L^{K}					
20							L	3.6^{H}	3.6^{H}	3.6^{H}	3.8^{H}	3.6^{H}	3.8^{H}	3.8	3.7^{H}	3.6^{H}	3.5^{-}	3.7	L					
21							L	L	3.7^{H}	4.2^{H}	4.0^{H}	4.0^{H}	3.8^{H}	3.8^{H}	3.7^{H}	3.8^{H}	3.7^{H}	L	L					
22							L	L	3.8^{H}	3.8	3.9	3.9^{H}	3.7^{H}	3.8	3.7	3.6	3.6^{H}	3.6^{H}	L					
23							L	3.5^{H}	3.6	3.7	3.9	3.9	3.8	3.7	3.7	3.6	3.6	3.6	L					
24							A^{K}	3.5^{A}	3.7$^{H}_{K}$	3.8$^{H}_{K}$	3.9^{K}	3.9^{K}	3.9$^{H}_{K}$	4.2^{K}	3.9$^{H}_{K}$	3.9^{K}	3.7$^{H}_{K}$	3.7$^{H}_{K}$	L^{K}					
25							L^{K}	3.7$^{H}_{A}$	3.8^{K}	4.0^{K}	4.0^{K}	3.9^{K}	3.9$^{H}_{K}$	3.9^{K}	3.9^{K}	A^{K}	A^{K}	3.6^{K}	A					
26							3.5^{-}	3.7^{H}	3.9^{H}	4.0^{H}	3.7^{H}	3.9^{H}	3.8	3.9^{H}	3.7^{H}	3.8	3.6	3.6	3.5^{-H}					
27							L	3.5^{-S}	3.9^{H}	4.0^{H}	4.0^{H}	A	3.8	3.8^{S}	3.6	A	3.5^{-}	A	A					
28							L	3.9	4.0	3.8^{H}	3.9	3.7^{H}	4.0	3.8^{H}	3.8	3.6^{H}	3.6	3.6	L					
29							L	3.7^{H}	3.8	3.6^{H}	3.8^{H}	3.8^{H}	3.9^{H}	3.8^{H}	3.5^{-H}	3.6^{H}	3.6	3.5^{-H}	L					
30							L	3.9^{H}	3.6	3.7	3.8^{H}	3.9	3.7^{H}	3.7	3.5^{-H}	3.5^{-}	3.5^{H}	3.5^{-}	3.5^{-}					
31																								
Median							—	3.6	3.7	3.8	3.8	3.8	3.8	3.8	3.7	3.6	3.6	3.6	—					
Count							1	17	26	26	26	25	26	26	27	26	27	22	2					

Sweep 1.0 Mc to 25.0 Mc In 0.25 min

Manual ☐ Automatic ☒

TABLE 60

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(MI500) E (Characteristic), (Unit) April (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W. J.W.P., F.J.M. J.J.S.

Calculated by: J.W.P. F.J.M., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								4.4 H	4.5	4.4	4.4 H	4.4 H	4.4 A	A	4.3	4.4 H	4.4 H	4.4	S					
2								4.4	4.3	4.3	4.2 K	4.2 K	4.3 K	4.4 K	4.3 K	4.1 K	4.3 K	4.3 K	S K					
3								(4.3) D K	4.2 K	4.2 K	4.3 K	4.2 H K	4.1 K	4.4 K	4.1 K	B K	4.1 K	(4.3) A K	A K					
4								4.3	4.2	4.3	4.3	B	(4.2) D	4.1	B	4.2	B	B	S					
5								4.3	4.1	4.3 H	(4.3) S	4.3 H	4.4	4.4	B	4.3 H	(4.4) D	4.3	S					
6								A	4.2	(4.4) D	(4.3) D	4.3	4.1	4 3	(4.1) D	4.3	4.1	4.3	S					
7								S	4.3	4.3 H	(4.4) D	S	(4.3) H	(4.3) H	(4.3) S	B	B	4.3	B					
8							S	4.2	4.4	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	C	C	C	C	C	C	C	C	C					
10							C	C	C	C	C	C	C	C	4.3	(4.3) S	S	S	S					
11							S	S	S	C	C	C	C	C K	C K	4.3 K	4.3 K	(4.3) D K	4.3 K					
12							(4.3) D K	4.3 K	S K	4.3 K	(4.3) D K	(4.4) A K	A K	4.3 S K	4.3 K	4.3 K	S K	S K	(4.3) S K					
13							B K	4 3 H K	4.3 K	4.3 K	4.5 H K	4.2 K	4.2	4.2 H	4.2 H	4.2 H	(4.3) S	4.3	B					
14							4.3	4.3	4.4	A	4 5	4.4	A	4.3	4 4	4.5 H	A	4.4 H	4.3					
15							(4.3) S	4.3 H	4.4 H	4.3	4.4	4.5	4.4 H	4.4 H	4.4 H	A	A	A	S					
16							(4.2) S	(4.3) A	(4.3) A	(4.4) A	A	(4.3) S	A	4.3	(4.5) A	(4.4) A	4.4	4.4 H	4.3					
17							S	(4.3) A	4.4 H	4.4	4.4 H	4.4	A	(4.3) A	4.3 H	4.3 H	4.4 H	A	(4.2) S					
18							4.3	4.4	4.4	4.4	(4.4) S	4.3	4.3	4 3	4.4	4 3 H	4.3	4.3 H	4.3 H					
19							S K	4.4 K	4.4 S K	4.4 H K	(4.4) D K	4.4 K	4.4 K	4.4 K	4.3 H K	4.4 H K	4.4 H K	4.4 H K	4.4 H K					
20							S	4.3	4.4	4.4	A	A	4.3 H	4.4 H	A	A	A	4.3 H	4.4					
21							4.5	4.5 H	4.6	(4.3) A	A	A	(4.5) A	4.3	A	4.3 H	4.3	4.4 H	S					
22							4.4	4.3 H	4.3 H	4.5	4.6	4.4	4.4	4.3 H	4 4	4.4	4.4	4.5	(4.5) S					
23							4.2	4.3 H	4.3 H	4.5	4.4 H	A	4.4	4.5 H	4.3 H	4.4	A	4.5 H	4.3					
24							S K	4.4 K	4.5 K	4.5 K	A K	A K	A K	4.4 K	4.3 H K	4.5 K	4.4 S K	4.4 K	4.4 K					
25							S K	4.5 K	4.4 S K	A K	(4.3) D K	A K	A K	4.5 K	A K	A K	4.4 K	4.3 K	A					
26							4.3	A	4.4	4.4	A	(4.4) A	4.4 H	A	4.3 H	4.3	4.4 H	A	4.3 S					
27							4.4	4.4	4.4 H	4.4	(4.4) A	4.4	(4.4) A	A	A	A	4.4	4.4	(4.4) D					
28							4.3	4.4 H	4.4	4.5	4.5	(4.5) H	(4.4) D	4.4 H	4.4 H	4.4 H	4.4	4.4	4.3					
29							4.4	4.3	4.4	4.5	A	A	4.3	4.3 H	4.3 H	4.3 H	4.4 H	4 4	4.4					
30							4.4	4.4	4.1	4.3	A	A	4 2	3.8 H	3 8 H	4.0	4.1	4.3	4.3					
31																								
Median							4.3	4.3	4.4	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.4	4.4	4.3					
Count							13	24	26	24	19	17	20	23	21	22	20	22	16					

Sweep 1.0 Mc to 25.0 Mc In 0.25 min

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Table 61

Ionospheric Storminess at Washington, D. C.

April 1954

Day	Ionospheric character* 00-12 GCT	12-24 GCT	Principal storms Beginning GCT	End GCT	Geomagnetic character# 00-12 GCT	12-24 GCT
1	3	2				
2	1	5	1500	----		
3	2	1	----	0100		
			1000	----		
4	3	4	----	1000		
5	4	2				
6	1	2				
7	1	3				
8	1	-				
9	-	-				
10	-	1				
11	0	8	1800/	----		
12	4	6	----	----		
13	8	3	----	1600		
14	1	1				
15	0	3				
16	2	3				
17	1	1				
18	2	1				
19	2	5	1100	----		
20	2	2	----	0100		
21	2	2				
22	1	3				
23	1	2				
24	2	5	1100	----		
25	2	4	----	0200		
			1100	2200		
26	3	3				
27	2	3				
28	2	2				
29	1	3				
30	2	3				

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

/Time uncertain, insufficient data.

#K-figures unavailable at time of publication.

----Dashes indicate continuing storm.

Table 62

Radio Propagation Quality Figures
(Including Comparisons with Short-Term and Advance Forecasts)

March 1954

Day	North Pacific 9-hourly quality figures			Short-term forecasts issued at:			Whole day quality index	Advance forecasts (J_p- reports) for whole day; issued in advance by:		
	03 to 12	09 to 18	18 to 03	02	09	18		1-4 days	4-7 days	8-25 days
1	5	5	6	5	5	6	5	(3)	(4)	x
2	5	5	6	5	5	6	5	(4)	(4)	
3	5	5	7	5	5	6	5	5	5	
4	5	5	7	6	5	6	6	6	5	
5	6	6	7	6	5	6	6	6	6	
6	5	6	5	6	5	6	5	6	6	
7	5	5	6	5	5	6	5	6	6	
8	5	5	6	6	5	6	5	6	6	
9	5	5	6	6	5	6	5	6	6	
10	5	(4)	6	6	5	6	5	5	6	
11	5	5	6	6	6	6	6	5	5	
12	5	6	6	5	5	6	6	5	5	
13	5	5	6	5	5	6	5	5	5	
14	5	(4)	6	5	(4)	5	(4)	(4)	(4)	x
15	(4)	(3)	7	5	(3)	5	(4)	(4)	(4)	x
16	5	(4)	6	5	5	6	5	(4)	(4)	x
17	5	5	6	5	(4)	6	5	(4)	5	
18	5	5	6	5	(4)	6	5	(4)	5	
19	5	(4)	6	5	5	6	5	(4)	5	
20	6	5	6	5	5	6	6	5	(4)	x
21	5	5	6	5	5	6	5	(4)	(4)	x
22	6	6	5	5	6	6	6	(4)	5	x
23	5	(4)	(4)	5	5	6	(4)	5	5	
24	5	(4)	(4)	5	(4)	5	(4)	5	5	
25	5	5	6	5	(4)	5	5	(4)	(4)	x
26	7	6	6	5	5	6	6	(4)	(4)	x
27	6	6	6	6	5	6	6	5	(4)	x
28	6	5	6	6	5	6	6	5	5	
29	7	6	6	6	6	6	7	6	5	
30	6	6	6	6	5	6	6	6	6	
31	5	5	7	5	(4)	6	5	5	6	

Score:

Quiet Periods	P	20	13	20	7	7
	S	9	11	8	17	16
	U	1	0	1	1	1
	F	0	0	0	2	3
Disturbed Periods	P	0	3	0	2	2
	S	1	4	1	2	2
	U	0	0	0	0	0
	F	0	0	1	0	0

Scales:

Q-scale of Radio Propagation Quality
- (1) - useless
- (2) - very poor
- (3) - poor
- (4) - poor to fair
- 5 - fair
- 6 - fair to good
- 7 - good
- 8 - very good
- 9 - excellent

Scoring: (beginning October 1952)
- P - Perfect: forecast quality equal to observed
- S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
- U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were ≥ 5, or both ≤ 5
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
- X - probable disturbed date

Note: All times are UT (Universal Time or GCT)

Table 63a

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

March 1954

Day	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day quality index	Advance forecasts (J-reports) for whole day; issued in advance by:			Geomagnetic K_{CH}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-4 days	4-7 days	8-25 days	Half day (1)	Half day (2)
1	(4)	(3)	6	6	5	(4)	6	6	(4)	5	(4)	X	2	2
2	5	(4)	6	6	5	(4)	6	6	5	5	5	X	(4)	2
3	5	(4)	6	6	5	(4)	6	6	5	5	6		2	2
4	5	(3)	6	6	5	5	6	6	5	6	6		3	2
5	(4)	(4)	6	6	6	(4)	6	6	5	6	6		3	2
6	5	5	7	6	6	5	6	6	6	6	6		2	2
7	5	5	6	6	6	5	6	6	5	6	6		(4)	3
8	5	5	6	6	5	5	6	6	6	6	6		3	3
9	5	(4)	6	6	6	5	7	6	5	6	6		3	3
10	5	5	7	6	5	5	7	6	6	6	6		2	2
11	5	(4)	6	5	6	5	6	6	5	7	6		(4)	3
12	5	(4)	6	6	5	5	6	6	5	6	7		3	3
13	5	(4)	7	6	5	5	6	6	5	6	6		2	3
14	(4)	(3)	6	5	5	(4)	5	5	(4)	5	6		(4)	(4)
15	(4)	(3)	6	6	5	(3)	5	5	(4)	(4)	(4)	X	(5)	3
16	(4)	(3)	6	6	5	(3)	6	6	(4)	(4)	(4)	X	3	3
17	5	5	6	6	5	(4)	7	6	5	(4)	(4)	X	3	(4)
18	(4)	(4)	6	6	5	(3)	6	6	(4)	5	5		(4)	2
19	(4)	(4)	6	6	5	(4)	6	6	(4)	5	5		2	3
20	5	(4)	6	6	6	(4)	6	6	5	5	5		(4)	(4)
21	5	(4)	6	6	5	(4)	6	6	5	(3)	(3)	X	3	2
22	5	(4)	6	6	6	(4)	6	6	5	(3)	(3)	X	3	3
23	(4)	(3)	6	5	6	(4)	6	5	(4)	5	(4)	X	(4)	(4)
24	(4)	(3)	6	5	(4)	(3)	6	5	(4)	5	5		(4)	3
25	(3)	(4)	6	5	5	(3)	5	5	(4)	5	5		3	2
26	(4)	(4)	6	6	(4)	(4)	6	6	5	(4)	(4)	X	(4)	3
27	(4)	5	6	6	5	(4)	6	7	5	(4)	(4)	X	3	2
28	5	5	7	6	6	5	7	7	6	6	6		3	1
29	6	5	6	6	6	6	7	6	6	6	6		2	2
30	7	5	6	5	6	5	7	6	6	6	6		3	3
31	6	(4)	6	6	5	5	6	6	5	6	6		3	2

Score:								
Quiet periods	P	10	6	23	26	9	8	
	S	9	3	8	5	10	11	
	U	0	0	0	0	3	3	
	F	0	0	0	0	0	0	
Disturbed periods	P	2	11	0	0	2	4	
	S	7	10	0	0	7	4	
	U	1	1	0	0	0	0	
	F	2	0	0	0	0	1	

Scales:

Q-scale of Radio Propagation Quality
- (1) - useless
- (2) - very poor
- (3) - poor
- (4) - poor to fair
- 5 - fair
- 6 - fair to good
- 7 - good
- 8 - very good
- 9 - excellent

K-scale of Geomagnetic Activity
0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

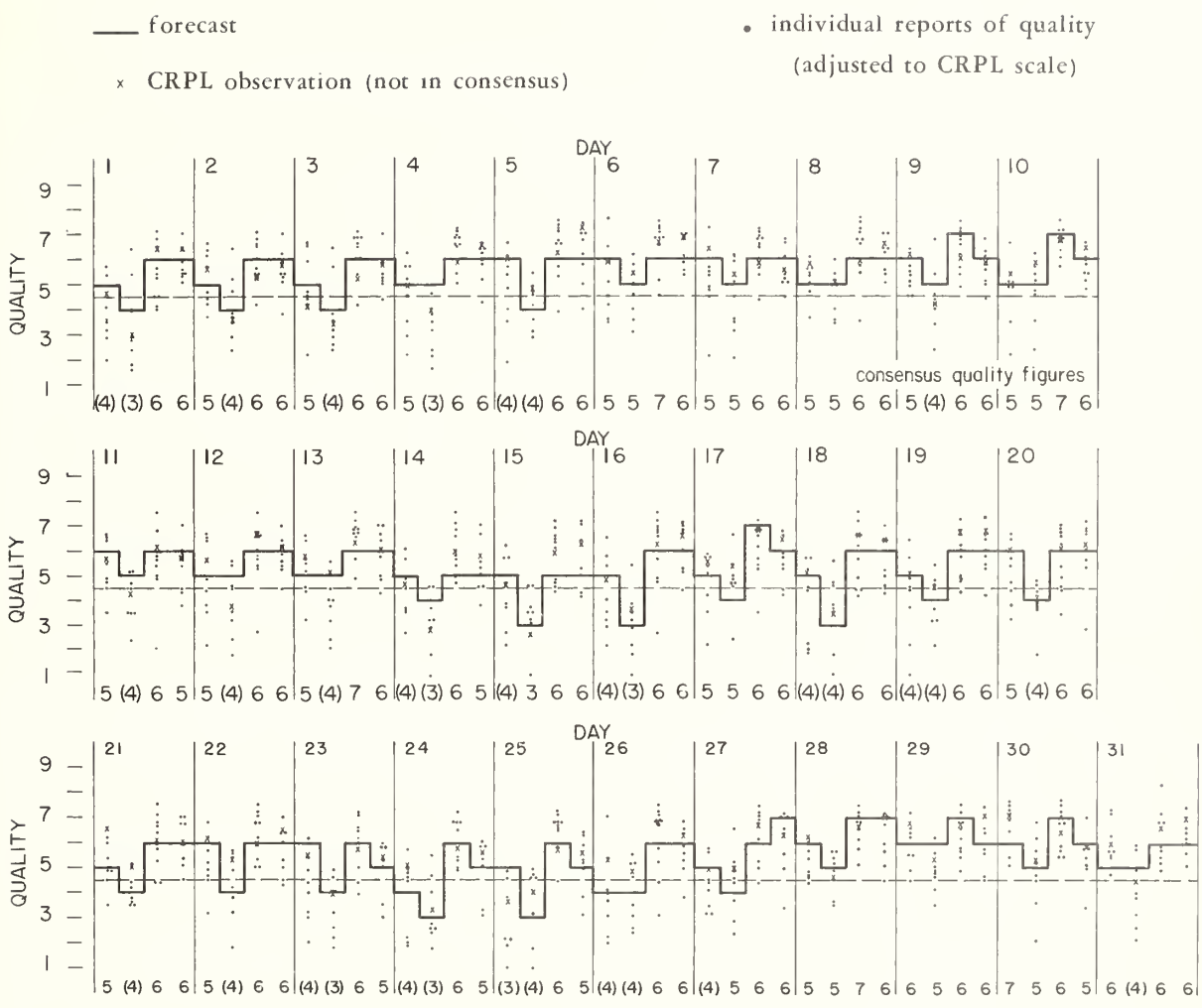
Scoring: (beginning October 1952)
- P - Perfect: forecast quality equal to observed
- S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
- U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were ≥ 5, or both ≤ 5
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
- X - probable disturbed date

Note: All times are UT (Universal Time or GCT)

Table 63b

Short-Term Forecasts---March 1954



Outcome of Advance Forecasts (1 to 4 days ahead) --- March 1954

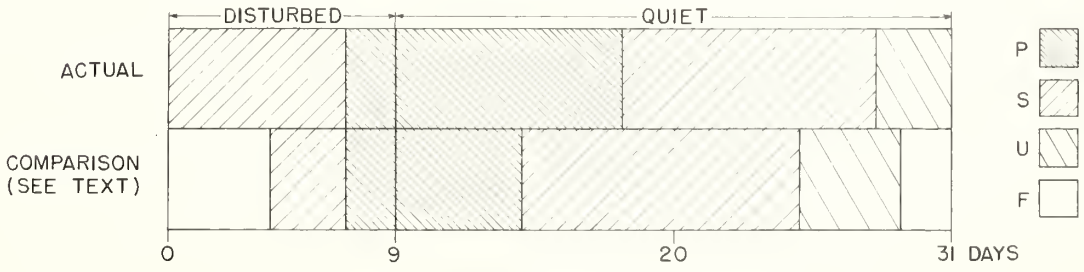


Table 64a

Coronal observations at Climax, Colorado (5303A), east limb

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Apr 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	4	2	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	8	4	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-
7.8	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	2	5	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9a	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
18.8	-	-	-	-	-	-	-	1	2	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.6	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 65a

Coronal observations at Climax, Colorado (6374A), east limb

Date	Degrees north of the solar equator																		0°	Degrees south of the solar equator																
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Apr 1.7	2	2	1	1	1	1	1	1	-	-	1	1	2	2	2	2	2	3	4	4	4	4	4	4	4	1	2	2	1	1	1	1	1	2	2	2	2
2.7	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5	5	4	4	3	3	3	2	2	2	2	2	2	1	1	2	2	2	2
5.7a	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	6	14	8	3	5	4	4	3	1	1	1	1	1	1	2	2	2	2	2
6.7	2	2	2	1	1	1	1	1	1	1	1	1	2	2	1	2	3	4	4	12	5	3	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2
7.8	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	3	5	5	5	5	6	3	4	2	1	1	1	1	1	1	1	1	1	1	1	2
8.9a	X	X	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2
9.6a	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	3	2	2	2	2	3	2	1	1	1	1	1	1	1	1	1	2	2	3	
10.6a	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2
12.7	2	2	2	2	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	4	4	3	3	3	3	3	3	1	1	1	1	1	1	1	2	2	2
13.7	2	2	1	1	1	1	1	1	1	1	1	2	2	3	2	2	2	2	2	3	3	3	3	4	3	3	2	1	1	1	1	1	1	2	2	2	2
15.6	2	2	2	2	1	1	1	1	1	1	1	5	3	3	1	2	2	3	4	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2
16.7	2	2	2	2	1	1	1	1	1	2	4	5	5	5	3	4	5	5	6	5	5	5	5	5	5	3	1	1	1	1	1	1	1	2	2	2	2
17.6	2	2	1	1	1	1	-	-	-	-	1	5	3	3	2	3	3	4	3	2	3	4	5	4	4	2	2	1	1	1	1	1	1	2	1	2	2
18.8	2	2	2	2	1	1	1	1	1	1	2	3	3	3	3	3	3	3	4	4	3	3	4	5	4	3	2	1	1	1	1	1	1	1	2	2	2
19.7	2	2	2	2	2	1	1	1	1	2	2	2	3	3	3	3	3	3	4	4	4	4	3	3	3	2	1	1	1	1	1	1	1	1	2	2	2
20.6a	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	4	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2
21.6	2	1	1	-	-	-	-	-	-	-	-	2	2	2	3	4	4	3	3	3	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2
22.7	3	2	2	1	1	1	1	1	2	2	3	3	3	4	4	5	5	5	4	4	4	4	4	4	4	1	1	1	1	1	1	1	1	1	2	2	
23.6	2	2	2	1	1	2	1	2	2	3	3	3	4	4	5	6	7	7	4	5	5	5	5	5	5	5	3	2	2	1	1	1	2	2	2	2	2
24.6a	-	-	-	-	-	-	-	-	-	2	2	2	2	2	4	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8a	2	2	3	2	2	1	1	1	1	1	1	3	4	4	4	4	4	2	3	3	3	5	5	4	4	5	5	3	2	1	1	1	1	1	2	2	2
27.8	2	2	2	2	1	1	1	1	1	1	1	2	3	2	2	2	2	2	3	4	5	5	5	4	4	4	4	4	2	2	1	1	1	1	1	2	2
28.6	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	5	5	4	3	2	2	2	2	3	2	1	1	1	1	1	1	1	2	2
29.6	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	4	3	3	3	3	3	3	2	1	1	1	1	1	1	1	2	2	
30.6	2	2	2	2	1	1	1	1	1	1	1	1	3	3	4	5	4	5	5	4	3	3	4	3	3	3	3	2	2	1	1	1	1	1	2	2	2

Table 66a

Coronal observations at Climax, Colorado (6702A), east limb

The 6702A coronal line was not visible on any of the observation dates in April 1954.

Table 64b

Coronal observations at Climax, Colorado (5303A), west limb

Date	Degrees south of the solar equator																				0°	Degrees north of the solar equator																		
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																									
Apr 1.7	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	1	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
7.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
9.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
18.8	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	5	9		4	1	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	5	1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
24.6	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
27.8a	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 65b

Coronal observations at Climax, Colorado (6374A) west limb

Date	Degrees south of the solar equator																					Degrees north of the solar equator																			
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																									
Apr 1.7	2	2	2	2	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	2	2	1	2	3	2	1	1	1	1	1	1	1	1	1	2	2
2.7	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	2	2	2	2	2	3	2	3	2	2	1	1	1	2	2	2	2	2	2
5.7	2	2	2	2	2	1	1	1	1	1	1	1	2	3	3	3	2	2	4	4	2	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2
6.7	2	2	2	2	2	1	1	1	1	1	1	2	3	4	4	4	4	4	4	4	4	4	4	4	3	2	1	1	1	1	1	1	2	2	2	2	2
7.8a	2	2	3	3	1	1	1	1	1	1	2	2	3	3	3	3	4	4	4	3	3	4	4	3	3	4	3	2	1	1	1	1	1	1	1	2	2
8.9a	2	1	1	1	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X
9.6a	3	3	2	2	2	1	1	1	1	2	2	2	3	3	3	3	3	4	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2
10.6a	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2	3	4	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2
12.7	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2
13.7a	2	2	2	2	1	1	1	1	1	1	2	2	3	4	4	4	4	4	3	3	2	2	3	3	3	2	3	3	1	1	1	1	1	2	2	2	2
15.6	2	2	1	1	1	1	1	1	1	2	2	3	3	3	4	3	4	4	3	3	4	3	3	3	3	2	1	1	1	1	1	1	1	1	2	2	2
16.7	2	2	2	2	1	1	1	1	1	1	1	3	4	4	4	4	5	6	7	7	7	7	5	3	2	1	1	1	1	1	1	2	2	2	3	3	2
17.6	2	2	1	1	1	1	1	1	2	2	2	1	2	3	4	4	3	5	5	4	5	4	4	3	3	2	2	1	1	1	1	1	1	1	2	2	2
18.8	2	2	2	1	1	1	1	1	1	1	2	4	3	3	3	2	2	4	9	3	3	4	3	3	3	2	2	1	1	1	1	1	1	1	1	2	2
19.7a	2	2	2	1	1	1	1	1	2	2	2	3	4	4	3	2	2	8	3	4	4	3	3	2	2	2	1	1	1	1	1	1	2	2	2	2	2
20.6a	2	2	1	1	1	1	1	1	1	1	1	3	3	3	3	3	5	2	2	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21.6	2	-	-	-	-	-	-	-	-	-	1	2	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2
22.7	2	2	3	2	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	5	5	4	4	3	3	1	1	1	1	1	2	2	2	2	2	2	3
23.6	2	2	2	1	1	1	1	1	2	2	2	3	3	3	3	3	3	4	7	6	9	5	5	5	3	3	2	1	1	1	1	1	1	1	1	1	2
24.6	X	X	X	X	X	X	X	X	X	X	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
26.8a	2	1	1	1	1	1	1	1	1	2	2	4	5	5	5	4	5	5	5	5	5	5	4	4	7	10	3	2	2	2	2	2	2	2	2	2	2
27.8a	2	2	1	1	1	1	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28.6	2	2	2	1	1	1	1	1	1	1	2	2	2	2	3	3	3	4	4	4	4	3	3	3	3	3	3	2	1	1	1	1	1	1	2	2	2
29.6	2	2	2	2	1	1	1	1	1	1	2	2	2	1	3	4	4	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	2	2
30.6	2	2	2	1	1	1	1	1	1	2	2	3	3	3	4	4	3	2	3	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	2	2

Table 66b

Coronal observations at Climax, Colorado (6702A), west limb

The 6702A coronal line was not visible on any of the observation dates in April 1954.

Table 67a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1954																																							
Apr 1.7	-	-	2	2	2	3	3	2	3	3	3	4	4	3	2	2	2	-	-	2	2	2	2	-	2	2	2	2	3	2	3	3	-	-	-	-	-	
2.7	-	-	-	-	-	-	-	2	2	3	3	4	4	3	2	2	2	3	3	3	3	3	2	2	2	2	2	2	3	2	-	-	-	-	-	-	-	-	
3.7	-	-	-	-	-	-	-	-	2	2	3	2	2	-	-	2	2	-	2	-	-	2	3	2	2	2	2	3	2	2	-	-	-	-	-	-	-	-	
4.8	-	-	-	-	-	-	2	2	3	4	3	3	2	2	3	2	2	2	2	3	8	11	10	3	2	3	3	2	3	2	-	-	-	-	-	-	-	-	
6.7	-	-	-	-	-	-	-	2	3	3	2	3	2	2	3	3	2	2	14	28	36	16	4	3	2	2	3	4	3	2	-	-	-	-	-	-	-	-	
7.7	-	-	-	-	-	-	-	2	4	5	4	4	5	4	4	2	2	3	8	20	18	8	5	4	3	2	2	3	3	2	-	-	-	-	-	-	-	-	
15.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.7a	-	-	-	-	-	-	-	-	-	3	4	3	3	3	2	3	-	-	-	-	-	3	4	3	4	3	2	2	3	3	2	-	-	-	-	-	-	-	
19.8a	-	-	-	-	-	-	-	-	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20.7a	-	-	-	-	-	-	-	2	2	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	2	-	-	-	-	-	-	
23.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	2	3	-	-	-	-	-	-	-	3	4	3	3	2	3	4	2	-	-	-	-	
28.7	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	2	3	2	3	2	2	3	3	3	-	2	2	3	3	2	-	-	-	-	-	-	-	

Table 68a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date	Degrees north of the solar equator																			0°	Degrees south of the solar equator																		
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1954																																							
Apr 1.7	3	2	2	2	2	2	-	2	-	2	2	-	-	3	4	5	5	4	8	7	8	6	5	4	4	5	3	4	3	2	2	2	3	2	3	2	3	
2.7	3	2	5	3	3	2	2	2	2	2	3	3	4	5	5	6	8	13	14	12	9	8	5	4	5	5	4	4	3	3	3	2	3	2	2	2	3	
3.7	3	2	3	2	3	-	2	2	2	2	2	3	3	4	5	4	5	5	8	11	10	8	6	6	5	5	4	4	5	3	2	-	-	2	3	-	3	
4.8	3	3	2	3	2	2	2	3	2	3	4	5	8	10	9	7	8	13	14	18	20	15	14	11	9	12	13	11	4	3	2	-	2	3	3	3	4	
6.7	4	2	3	2	3	2	2	2	2	3	4	8	7	5	5	4	6	13	20	39	20	16	5	10	11	8	9	8	4	3	2	2	3	2	3	4	4	
7.7	4	3	4	3	4	3	2	2	3	2	3	5	6	7	7	8	14	15	20	16	14	13	10	8	9	6	7	8	4	3	2	-	2	2	3	3	4	
15.8a	-	-	-	-	-	-	-	-	-	2	2	3	5	4	3	3	4	5	6	6	5	4	3	3	2	2	3	3	-	-	-	-	-	-	-	-	-	-	
18.7a	-	-	-	-	-	-	-	-	-	2	2	3	2	3	3	4	4	4	5	4	5	3	4	5	5	5	3	2	-	-	-	-	-	-	-	-	-	-	
19.8a	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	4	3	3	3	3	4	4	3	4	3	2	-	-	-	-	-	-	-	-	-	-	-	-	
20.7a	-	-	-	-	-	-	-	-	-	2	3	3	4	5	4	4	5	6	8	4	5	4	5	4	3	3	2	-	-	-	-	-	-	-	-	2	2	3	
23.8a	-	-	-	-	-	-	-	-	-	-	-	2	-	2	2	2	3	3	4	3	3	4	3	4	4	3	4	5	-	-	-	-	-	-	-	-	-	-	
27.8a	3	2	3	2	-	2	-	2	3	3	2	2	3	3	3	5	4	4	5	5	4	5	4	4	4	4	4	4	5	-	-	-	-	-	-	-	-	-	
28.7	4	4	2	3	2	4	3	2	2	3	4	3	3	4	5	6	7	8	8	11	12	14	11	5	4	4	5	4	3	2	-	2	2	2	2	3	4		

Table 69a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

Date	Degrees north of the solar equator																			0	Degrees south of the solar equator																		
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1954																																							
Apr 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
23.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
28.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 67b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date	Degrees south of the solar equator																				0°	Degrees north of the solar equator																			
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5				5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90			
1954																																										
Apr 1.7	-	-	-	-	-	-	-	2	4	5	3	3	3	5	4	4	3	4			4	3	3	2	2	2	2	3	3	4	4	3	2	2	2	-	-	-	-			
2.7	-	-	-	-	-	-	2	3	4	5	3	3	4	5	4	3	4	2			2	2	2	2	2	3	3	2	2	2	2	3	2	-	-	-	-	-	-			
3.7	-	-	-	-	-	-	-	2	2	3	3	4	4	5	4	4	4	5			4	3	2	-	-	3	2	2	2	2	2	2	-	-	-	-	-	-	-			
4.8	-	-	-	-	-	-	-	2	2	3	3	4	3	2	2	2	3	3			2	2	3	2	-	-	-	-	-	2	3	3	2	-	-	-	-	-	-			
6.7	-	-	-	-	-	-	2	3	3	4	5	4	3	2	-	-	2	3			3	2	2	-	-	2	3	2	3	4	3	2	2	2	-	-	-	-	-			
7.7a	-	-	-	-	-	-	-	-	2	3	4	3	3	2	2	2	3	2			2	3	2	2	3	2	2	-	-	2	4	3	2	3	2	-	-	-	-			
15.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
18.7	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	4	11			14	5	3	3	2	2	2	3	3	2	4	4	4	3	2	-	-	-	-			
19.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8			5	5	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
20.7a	-	-	-	-	-	-	-	-	-	-	2	3	3	2	2	3	5	7			6	5	3	2	2	-	2	2	-	-	-	-	2	3	X	X	-	-	-			
23.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3			3	3	4	5	4	3	2	2	3	2	3	-	-	-	-	-	-	-	-			
27.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			2	2	3	3	3	3	3	-	-	3	4	4	3	3	-	-	-	-	-			
28.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	2	2	2			2	2	2	-	-	-	-	-	2	5	8	4	3	2	-	-	-	-	-			

Table 68b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date	Degrees south of the solar equator																				0°	Degrees north of the solar equator																			
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5				5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90			
1954																																										
Apr 1.7	3	3	3	4	3	2	2	3	2	2	3	4	5	4	3	4	5	8			7	8	8	7	5	4	4	5	4	2	3	3	2	-	2	2	3	3	3			
2.7	3	3	2	3	2	3	2	2	3	3	3	2	3	3	4	4	5	9			11	8	7	5	6	5	4	5	4	3	3	-	-	-	3	2	2	3	3			
3.7	3	2	3	2	2	2	-	-	3	3	2	3	3	6	7	5	6	7			8	7	8	7	6	5	5	5	4	3	2	2	2	-	-	2	-	3	3			
4.8	4	2	3	2	2	2	-	2	2	3	3	3	3	4	4	6	7	8			9	8	11	10	7	5	6	8	8	7	4	2	2	-	2	3	2	2	3			
6.7	4	2	2	2	2	2	3	2	3	2	3	5	7	8	11	8	7	11			14	18	15	12	16	14	15	12	8	6	3	2	2	2	3	3	4	4	4			
7.7a	4	4	3	4	3	2	3	2	2	3	4	5	8	7	8	6	6	11			14	15	11	11	10	7	6	6	5	5	3	2	2	2	3	3	4	4	4			
15.8a	-	-	-	-	-	-	-	-	-	3	4	5	8	7	5	6	6				5	6	6	5	5	4	3	5	4	2	-	-	-	-	-	-	-	-	-			
18.7	-	2	2	3	2	2	-	-	2	3	2	4	5	4	3	5	4	8			14	11	7	6	5	4	3	2	2	2	2	2	-	-	-	-	-	-	-			
19.8a	-	-	-	-	-	-	-	-	-	-	-	3	3	4	4	4	4	3			5	4	4	4	3	2	3	3	2	2	-	-	-	-	-	-	-	-	-			
20.7a	3	2	2	-	2	2	2	-	2	2	3	3	2	3	4	4	5	5			8	5	4	4	4	3	3	2	2	-	-	-	-	X	X	-	-	-	-			
23.8a	-	-	-	-	-	-	-	-	2	3	3	2	3	3	4	3	3	4			5	4	5	4	3	4	4	4	4	3	-	-	-	-	-	-	-	-	-			
27.8a	-	-	-	-	-	-	-	-	2	3	3	2	3	3	3	3	2	3			5	4	3	4	3	3	2	3	2	2	2	-	2	2	2	2	3	3			
28.7	4	2	3	4	2	3	3	2	3	3	5	4	5	4	5	6	11	12			11	9	8	6	4	4	5	5	5	5	3	2	-	2	3	3	3	3	4			

Table 69b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date	Degrees south of the solar equator																				0	Degrees north of the solar equator																			
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5				5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90			
1954																																										
Apr 1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
7.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
15.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2			2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
19.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
20.7a	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-			
23.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
27.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

Table 70

Zürich Provisional Relative Sunspot Numbers

April 1954

Date	R_Z*	Date	R_Z*
1	0	17	0
2	0	18	0
3	0	19	0
4	0	20	8
5	0	21	0
6	0	22	0
7	8	23	0
8	8	24	0
9	15	25	0
10	0	26	0
11	0	27	0
12	0	28	0
13	0	29	0
14	0	30	0
15	7		
16	7	Mean:	1.8

*Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 71

American Relative Sunspot Numbers

March 1954

Date	$R_{A'}$	Date	$R_{A'}$
1	10	17	24
2	8	18	26
3	9	19	19
4	1	20	17
5	0	21	15
6	0	22	10
7	0	23	0
8	0	24	5
9	0	25	1
10	0	26	0
11	0	27	0
12	8	28	0
13	19	29	0
14	24	30	0
15	26	31	0
16	26	Mean:	8.0

Table 72

Solar Flares, April 1954

It is hoped to publish the April 1954 solar flare data in a future issue of the F series.

Table 73

Indices of Geomagnetic Activity for March 1954

Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1954	C	Values Kp three-hour interval 1 2 3 4	5 6 7 8	Sum	Final Selected Days
1	0.5	2o 2o 1+ 1o	1o 1- 1+ 4o	13+	Five
2	0.8	4+ 4+ 3o 3-	1o 1o 3o 3o	22+	Quiet
3	0.5	3o 3o 2- 1o	2o 2+ 2o 2o	17o	
4	0.6	2- 2o 3o 2-	2+ 2- 3- 3o	18o	1
5	0.6	4- 3- 2+ 3o	3o 2+ 2- 3-	21+	3
					27
6	0.5	3o 3o 1+ 2-	2o 2o 2o 2+	17+	28
7	0.8	3o 4o 2o 3+	3o 3o 3+ 3-	24+	29
8	0.7	2+ 3- 2o 2+	2o 2o 2+ 4-	19+	
9	0.9	3- 3o 2+ 3+	2+ 5- 4+ 2o	25-	
10	0.6	1o 1+ 2+ 2+	3- 2- 3o 3-	17o	
11	1.0	3+ 4o 4- 3o	3+ 4- 3+ 4-	28o	Five
12	0.7	3- 3- 3+ 2-	3+ 2+ 3o 3o	22o	Disturbed
13	1.0	2+ 2+ 1o 2-	3- 4o 5- 3+	22o	
14	1.4	4o 4+ 4+ 3+	3+ 5+ 4+ 4+	33+	14
15	1.2	5o 5- 5o 4-	4o 3o 4- 4o	33o	15
					20
16	0.9	3o 4- 4- 3+	4- 2+ 4- 3-	26o	23
17	1.1	3o 3o 2- 2o	2+ 4+ 4+ 4-	24+	24
18	1.0	5o 4o 3+ 3+	3o 3o 4- 2-	27o	
19	0.7	3o 2o 1o 1+	4- 2+ 3o 3o	19+	
20	1.0	4o 3o 4o 4-	3o 4- 3+ 4o	29-	
21	0.8	4- 2- 2+ 2+	1o 2+ 4- 3-	20-	Ten
22	1.2	4- 2o 2o 3-	1o 2+ 6o 5+	25o	Quiet
23	1.5	5o 4- 4+ 4o	4o 3+ 6o 6o	36+	
24	1.2	4+ 4o 4+ 4+	2+ 4o 4+ 4+	32o	1
25	0.8	4o 3+ 4- 3o	2o 2+ 3+ 2o	24-	3
					4
26	0.9	3- 3+ 3o 4-	4- 3+ 3+ 3o	26o	6
27	0.3	4- 3- 3- 2+	1- 0+ 2- 1+	15+	10
28	0.2	3- 1+ 2o 1+	1- 1+ 2o 2o	13+	19
29	0.2	2o 1- 1+ 1+	1o 2- 2- 2o	12-	27
30	1.0	4- 2o 1+ 2-	4o 3- 3o 4+	23-	28
31	0.6	2+ 3- 3+ 2-	2o 2o 3- 3-	19+	29
					31
Mean	0.59				

Table 7[4]

Sudden Ionosphere Disturbances

It is hoped to bring the SID data up to date in a future issue of the F series.

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder, Colorado.

GRAPHS OF IONOSPHERIC DATA

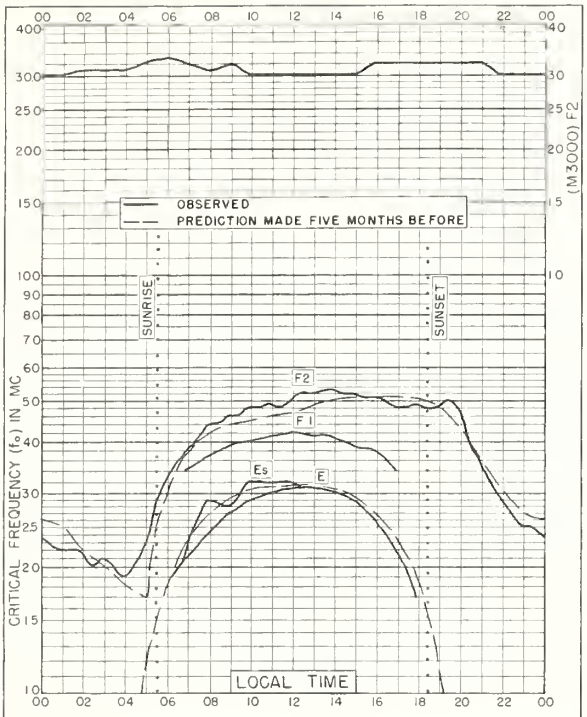


Fig. 1. WASHINGTON, D.C. 38.7°N, 77.1°W APRIL 1954

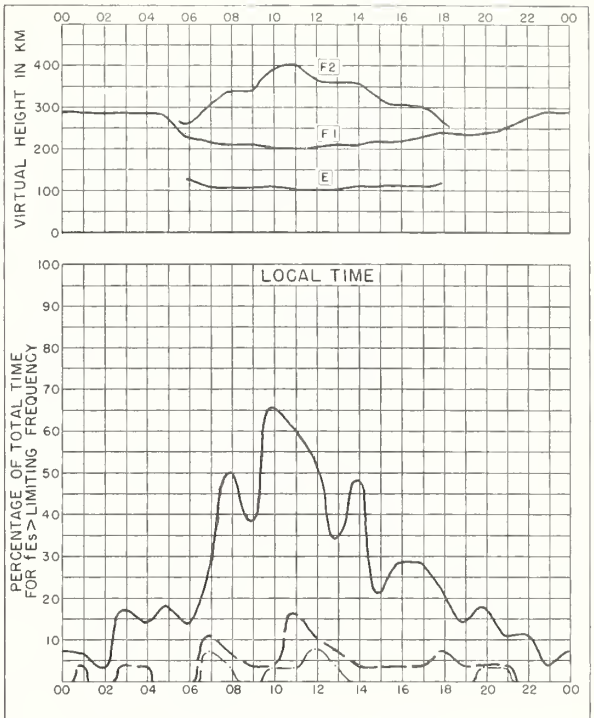


Fig. 2. WASHINGTON, D. C. APRIL 1954

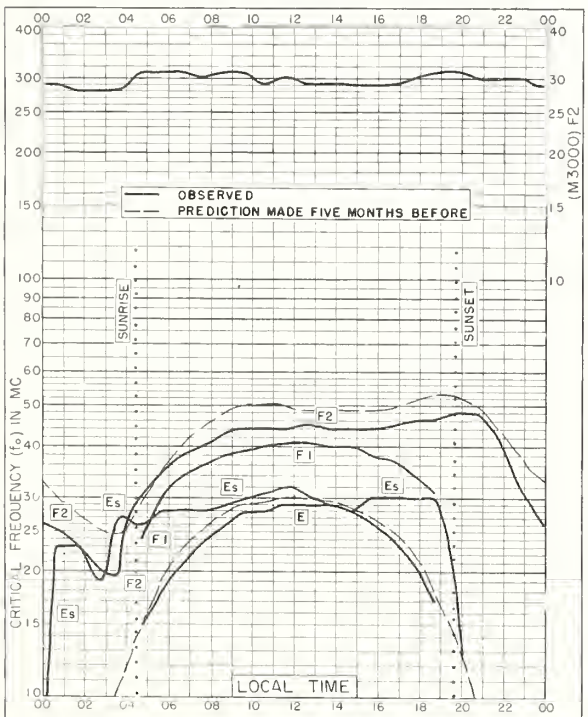


Fig. 3. INVERNESS, SCOTLAND 57.4°N, 4.2°W AUGUST 1953

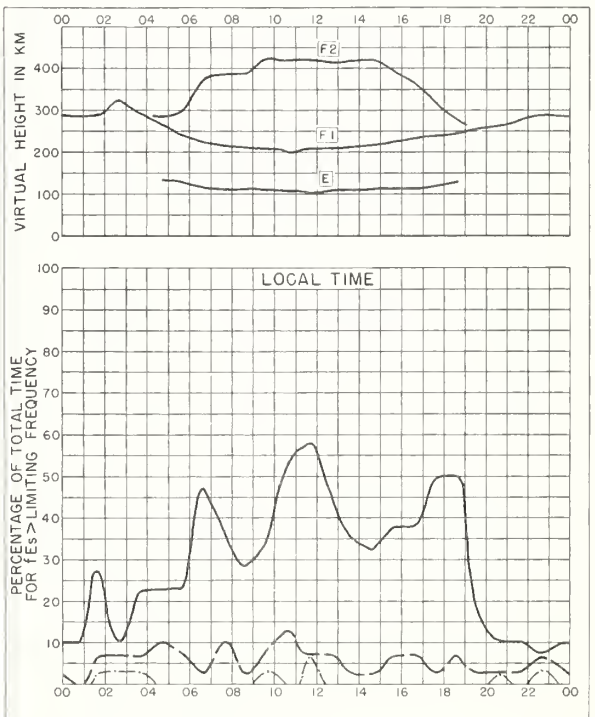


Fig. 4. INVERNESS, SCOTLAND AUGUST 1953

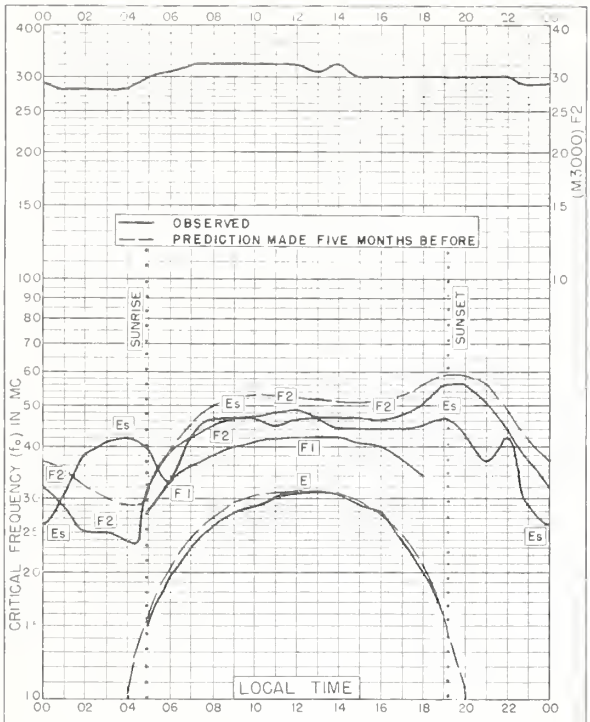


Fig.5. SLOUGH, ENGLAND
51.5° N, 0.6° W AUGUST 1953

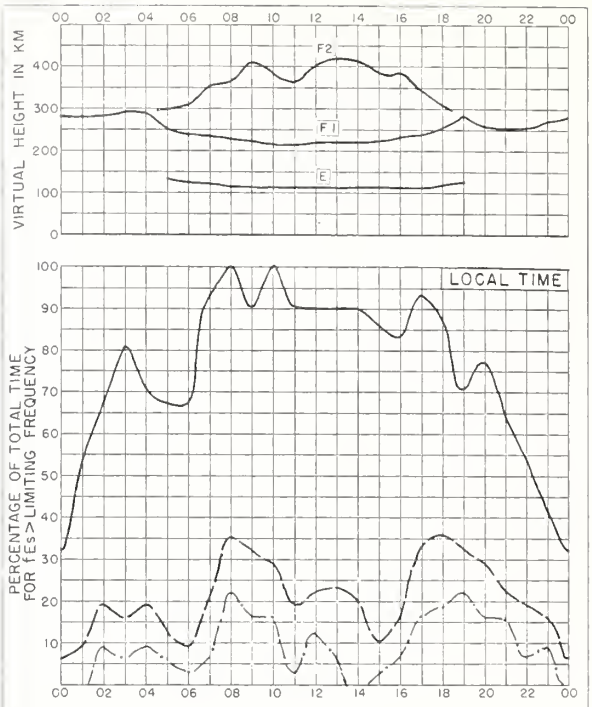


Fig 6. SLOUGH, ENGLAND AUGUST 1953

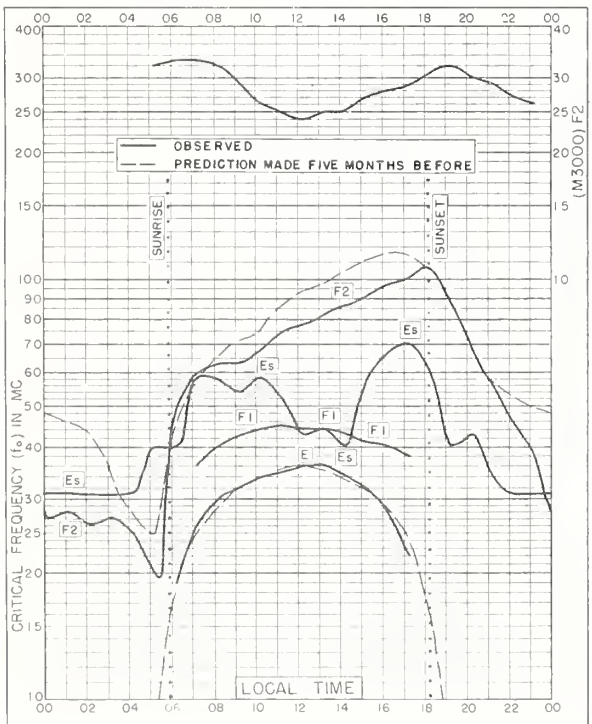


Fig 7. KHARTOUM, SUDAN
15.6°N 32.6°E AUGUST 1953

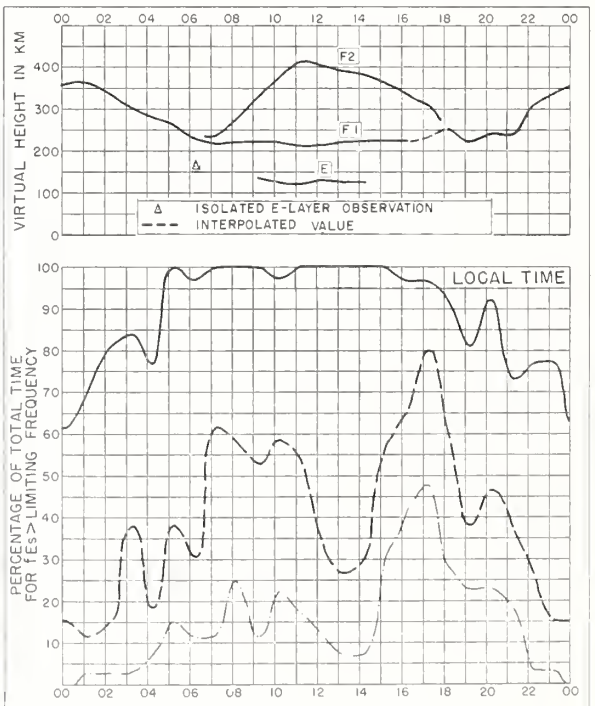


Fig.8. KHARTOUM, SUDAN AUGUST 1953

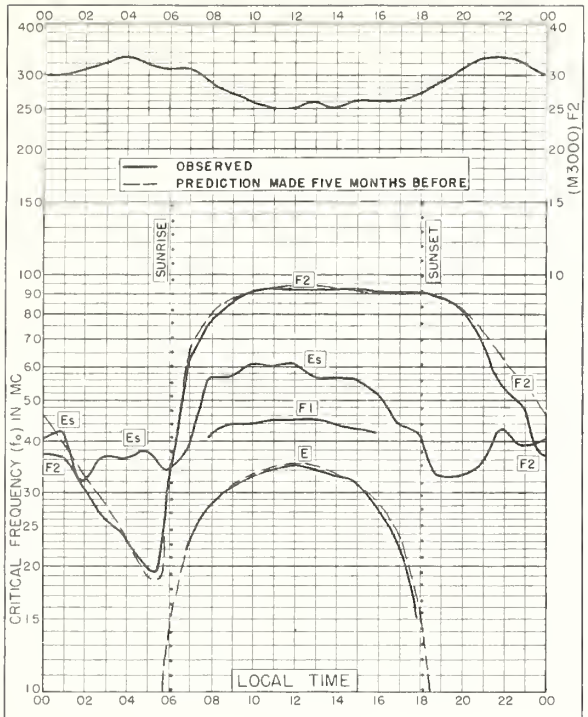


Fig. 9. SINGAPORE, BRITISH MALAYA
1.3° N 103.8° E AUGUST 1953

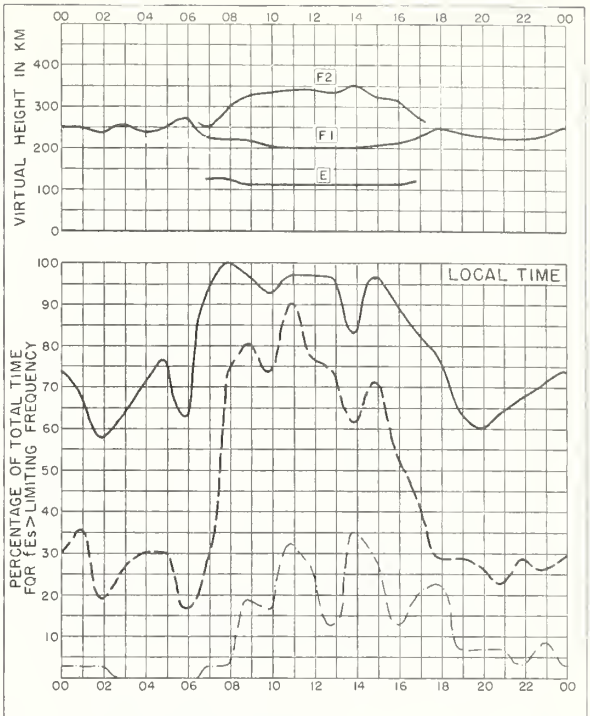


Fig. 10. SINGAPORE, BRITISH MALAYA AUGUST 1953

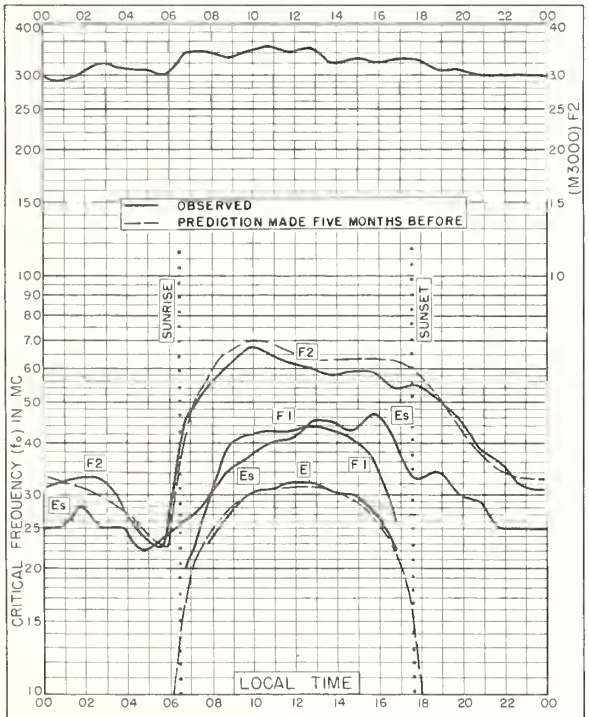


Fig. 11. RAROTONGA I.
21.3° S, 159.8° W AUGUST 1953

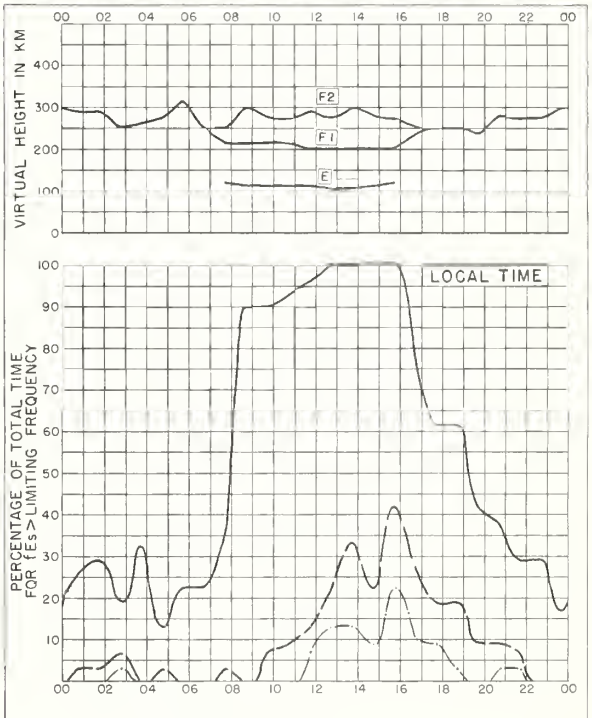


Fig. 12. RAROTONGA I. AUGUST 1953

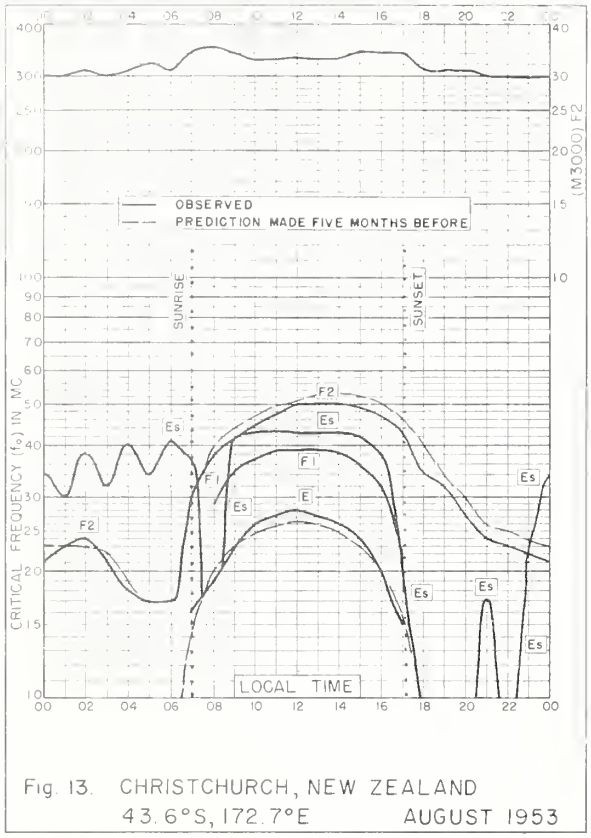
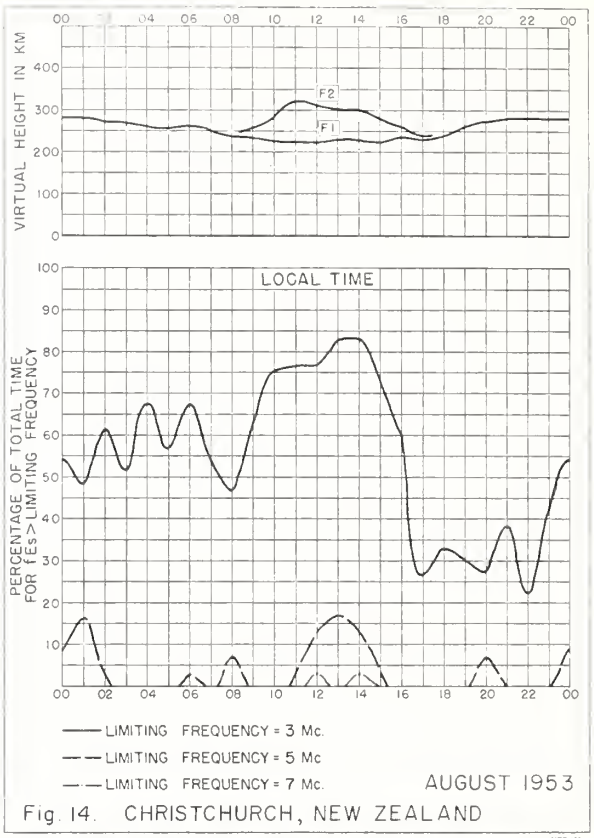


Fig. 13. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.7°E AUGUST 1953



AUGUST 1953

Fig. 14. CHRISTCHURCH, NEW ZEALAND

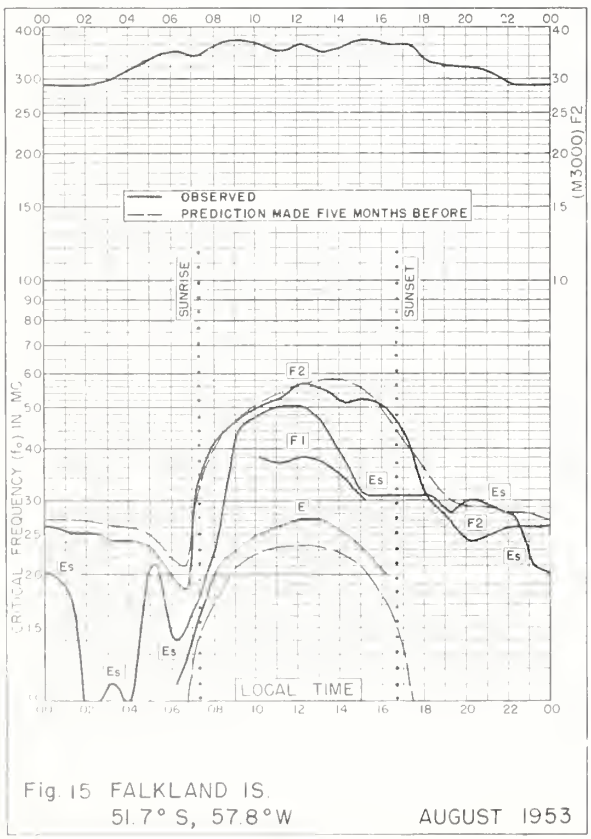


Fig. 15 FALKLAND IS.
51.7° S, 57.8°W AUGUST 1953

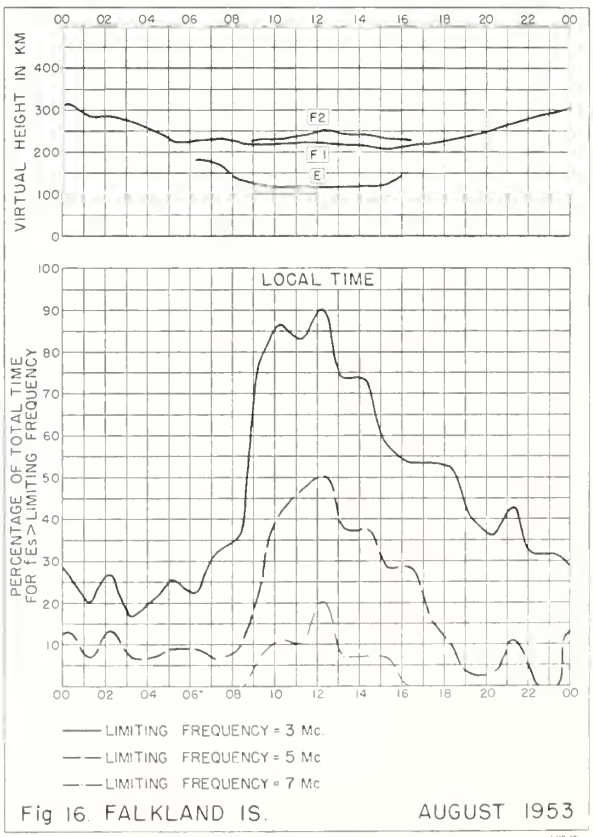


Fig 16. FALKLAND IS. AUGUST 1953

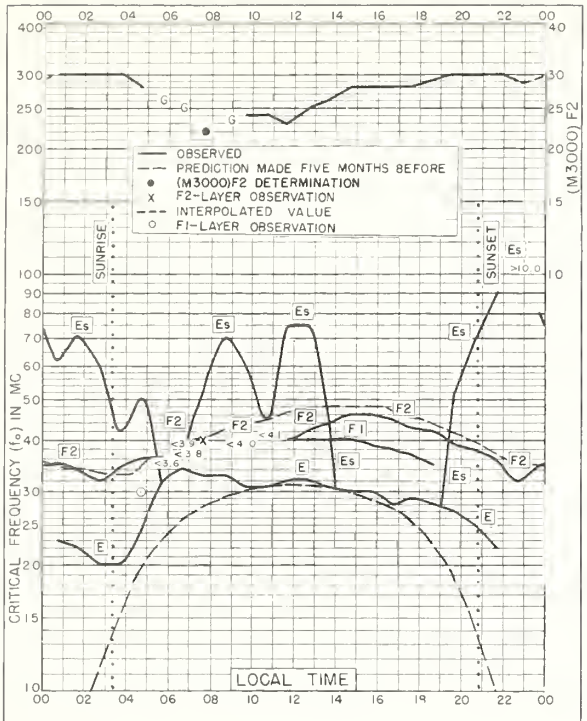


Fig. 17. CHURCHILL, CANADA
58.8°N, 94.2°W JULY 1953

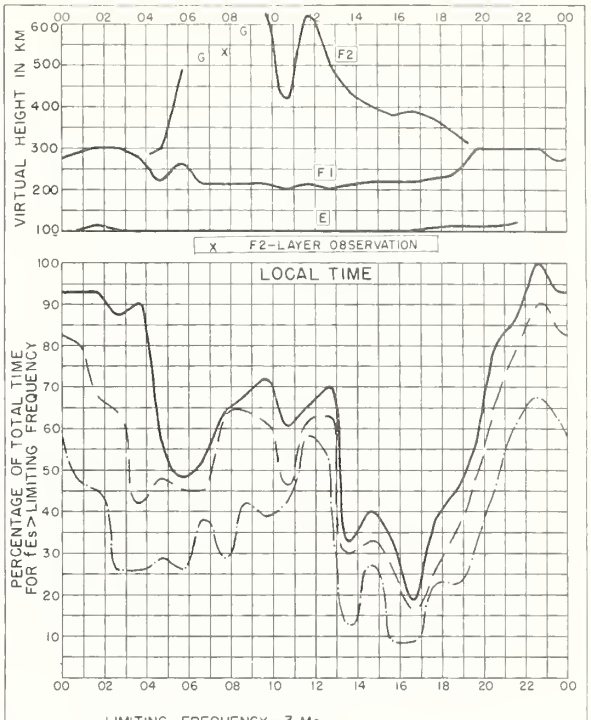


Fig. 18. CHURCHILL, CANADA JULY 1953

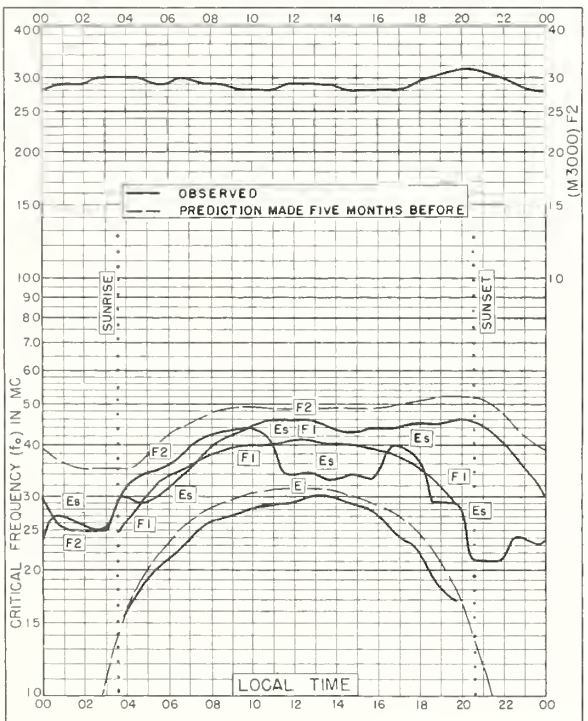


Fig. 19. INVERNESS, SCOTLAND
57.4°N, 4.2°W JULY 1953

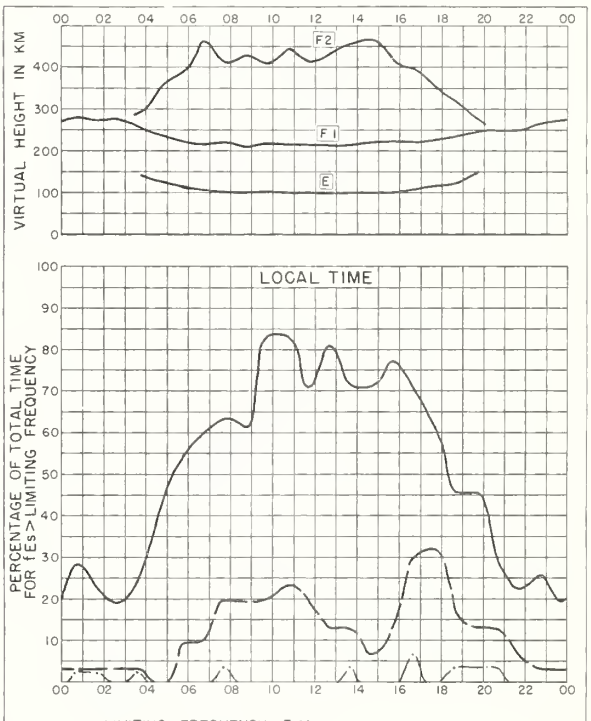


Fig. 20. INVERNESS, SCOTLAND JULY 1953

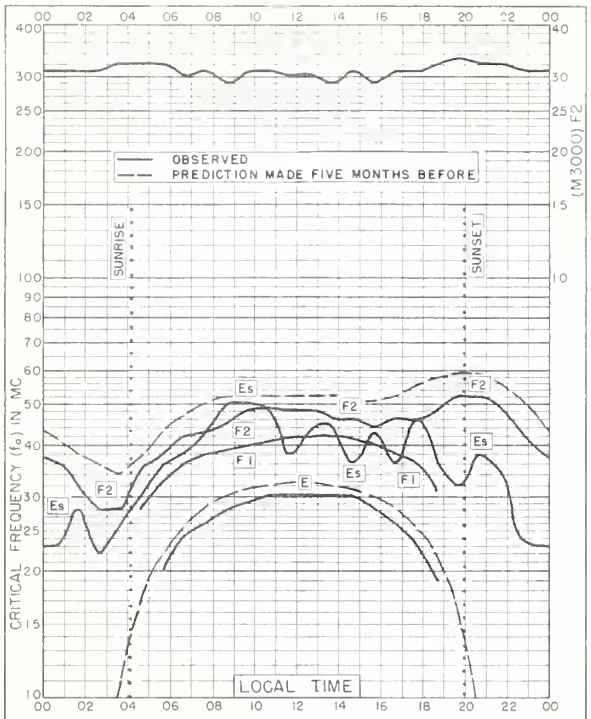


Fig. 21. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JULY 1953

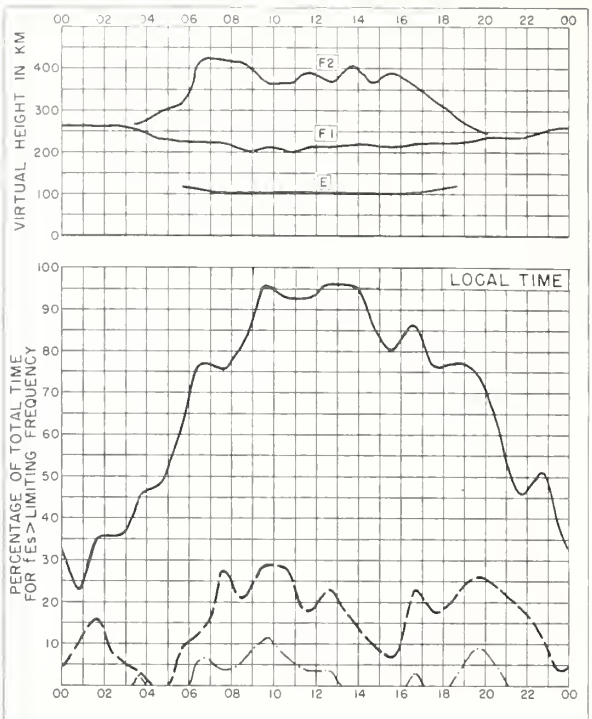


Fig. 22. LINDAU/HARZ, GERMANY JULY 1953

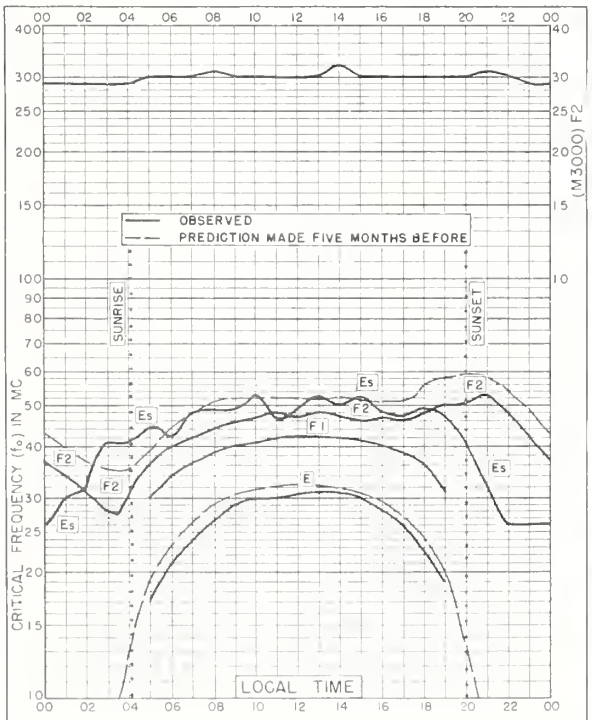


Fig. 23. SLOUGH, ENGLAND
51.5°N, 0.6°W JULY 1953

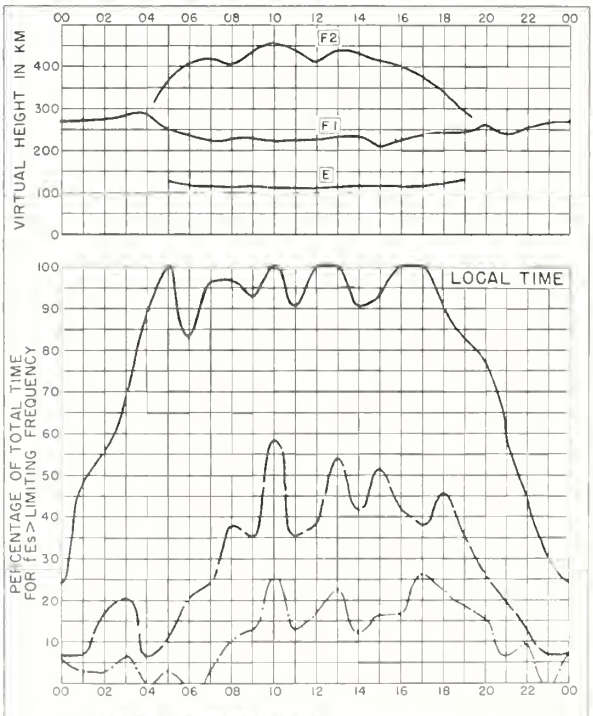


Fig. 24. SLOUGH, ENGLAND JULY 1953

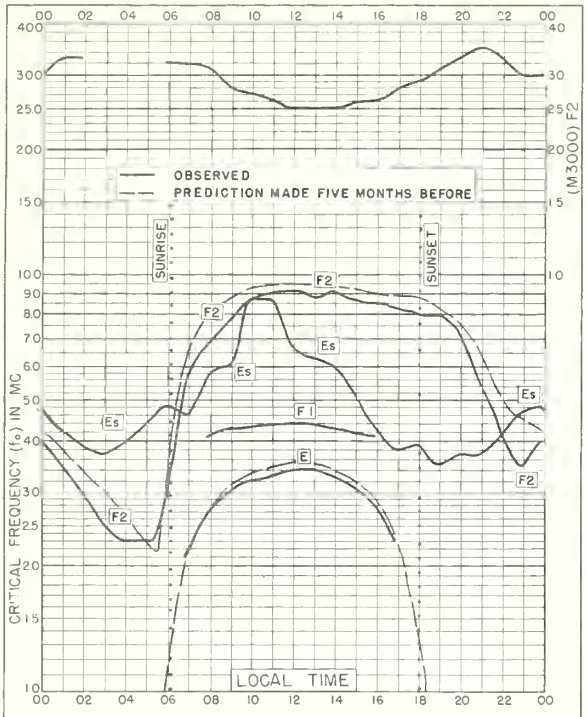


Fig. 25. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E JULY 1953

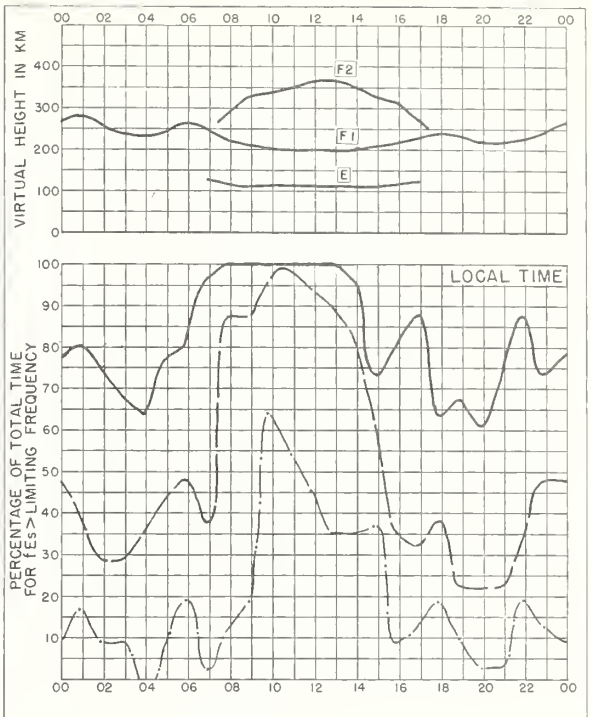


Fig. 26. SINGAPORE, BRITISH MALAYA JULY 1953

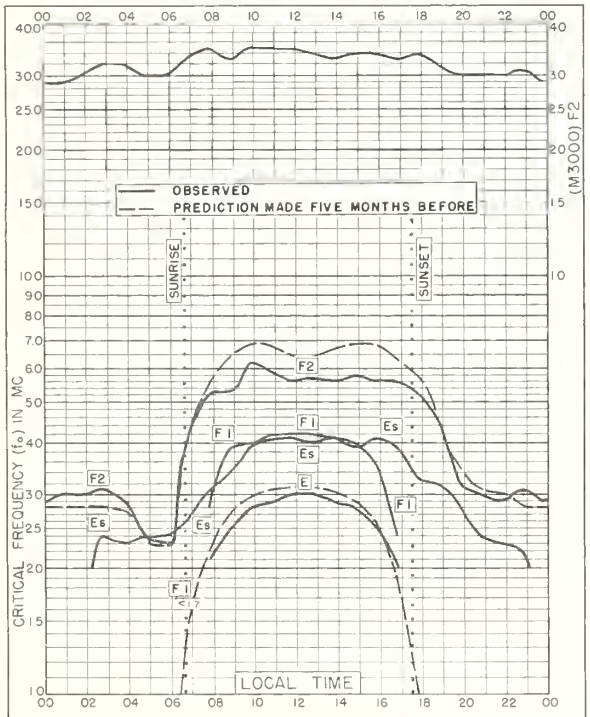


Fig. 27. RAROTONGA I.
21.3°S, 159.8°W JULY 1953

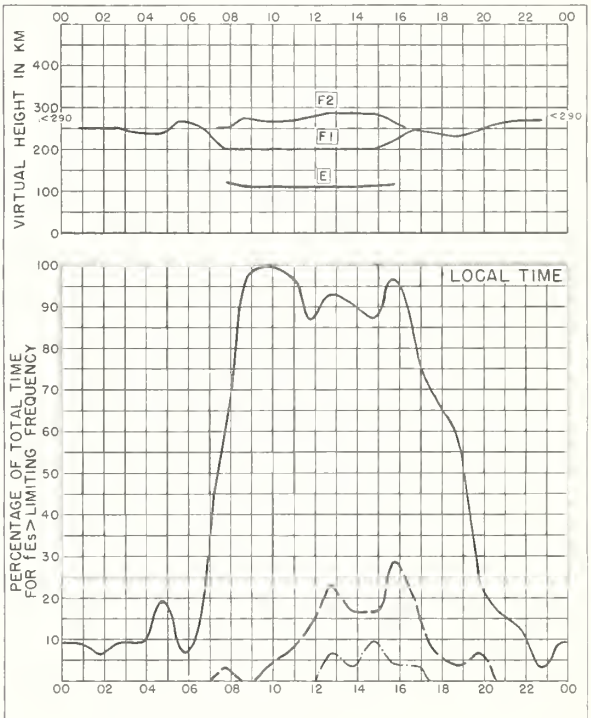


Fig. 28. RAROTONGA I. JULY 1953

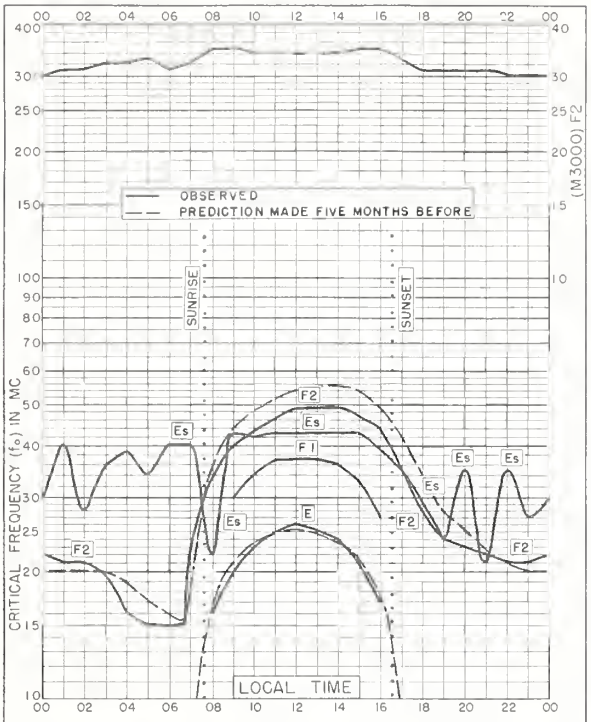
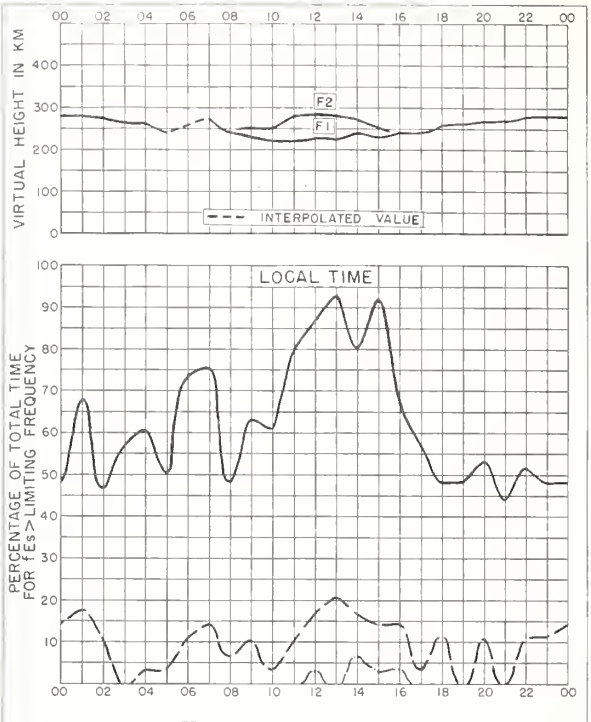


Fig. 29. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.7°E JULY 1953



JULY 1953

Fig. 30. CHRISTCHURCH, NEW ZEALAND

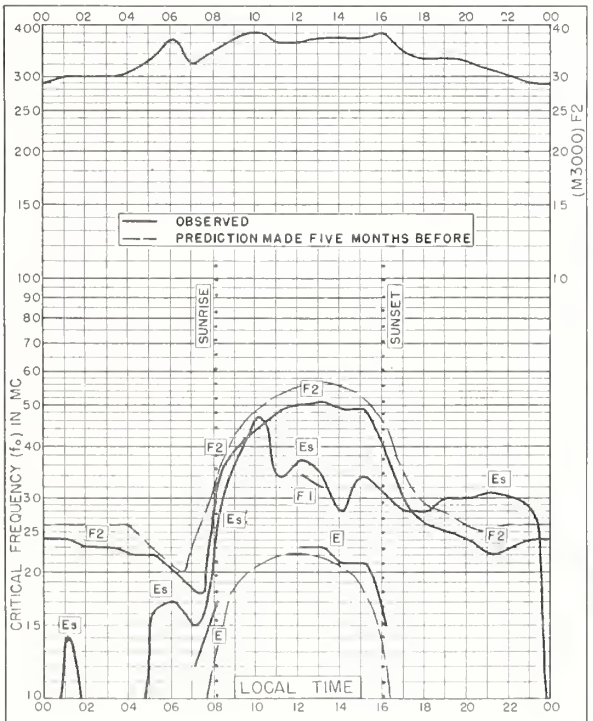


Fig 31. FALKLAND IS.
51.7° S 57.8° W JULY 1953

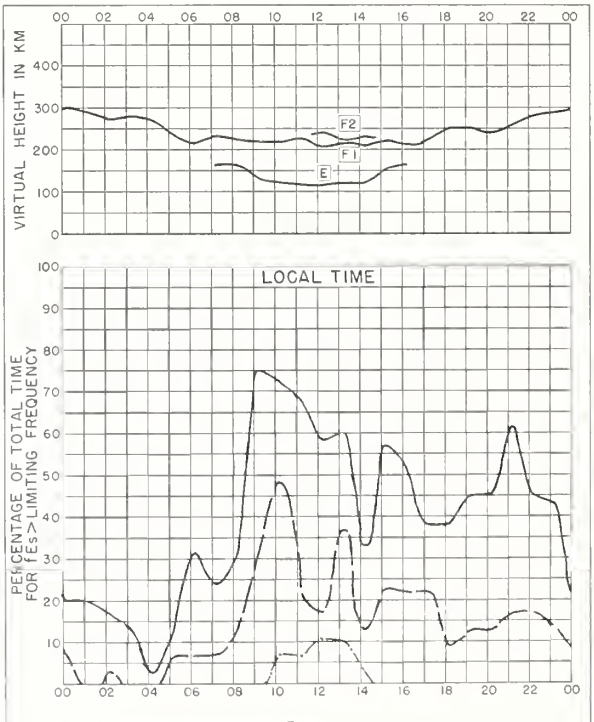


Fig. 32. FALKLAND IS. JULY 1953

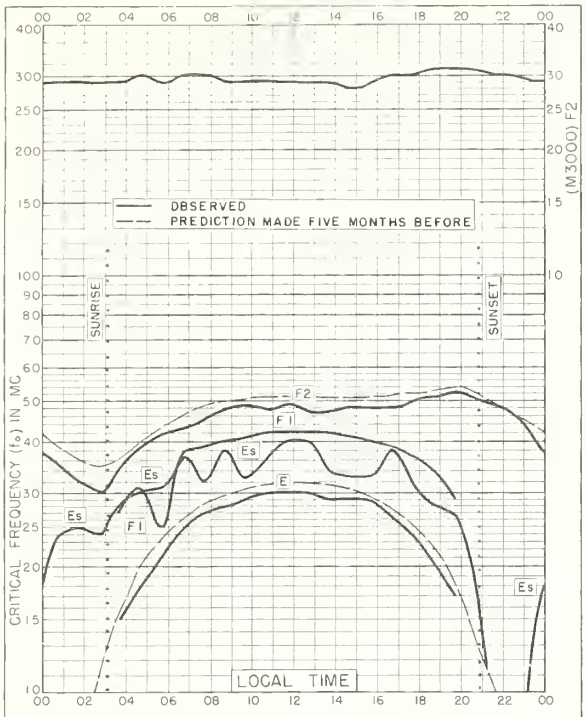


Fig.33. INVERNESS, SCOTLAND
57.4°N, 4.2° W JUNE 1953

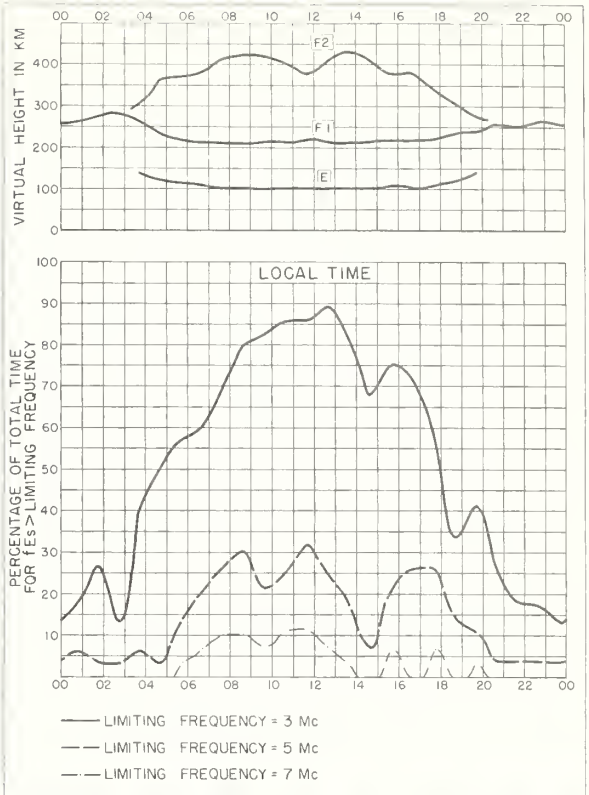


Fig.34. INVERNESS, SCOTLAND JUNE 1953

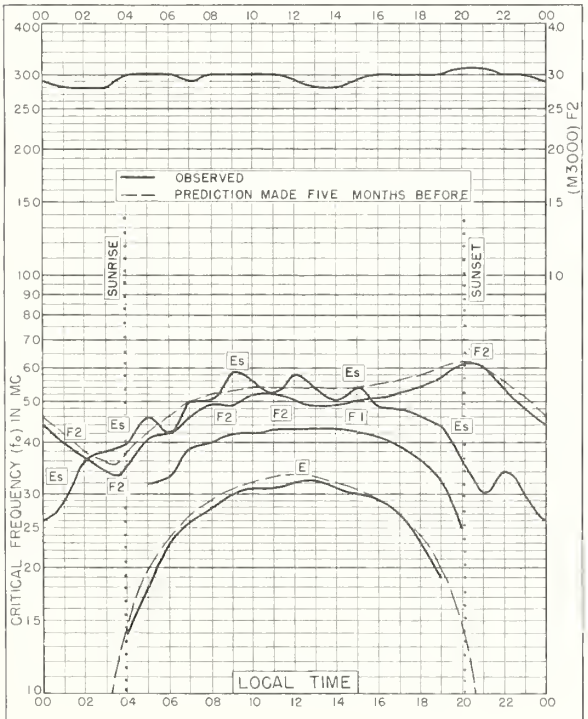


Fig 35. SLOUGH, ENGLAND
51.5°N, 0.6° W JUNE 1953

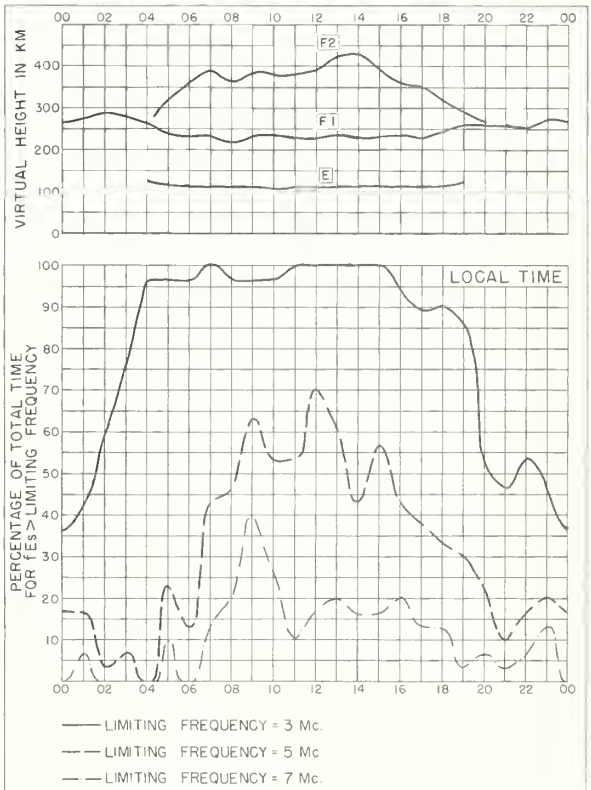


Fig 36. SLOUGH, ENGLAND JUNE 1953

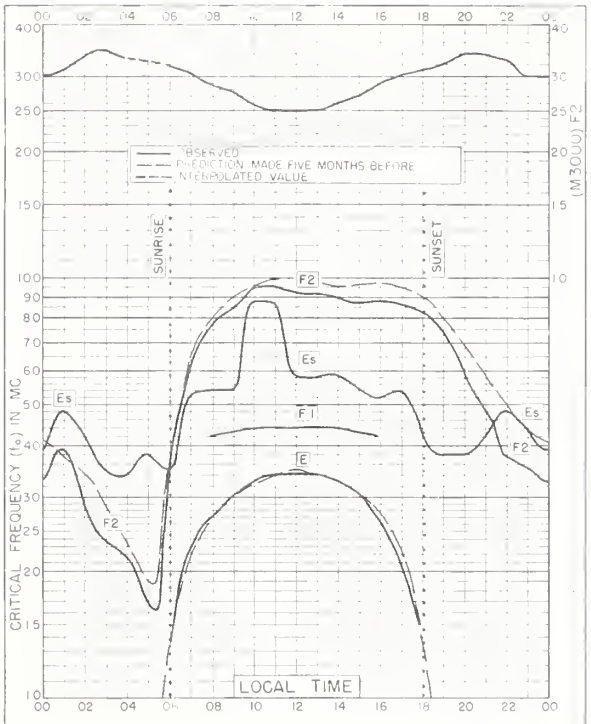


Fig. 37. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E JUNE 1953

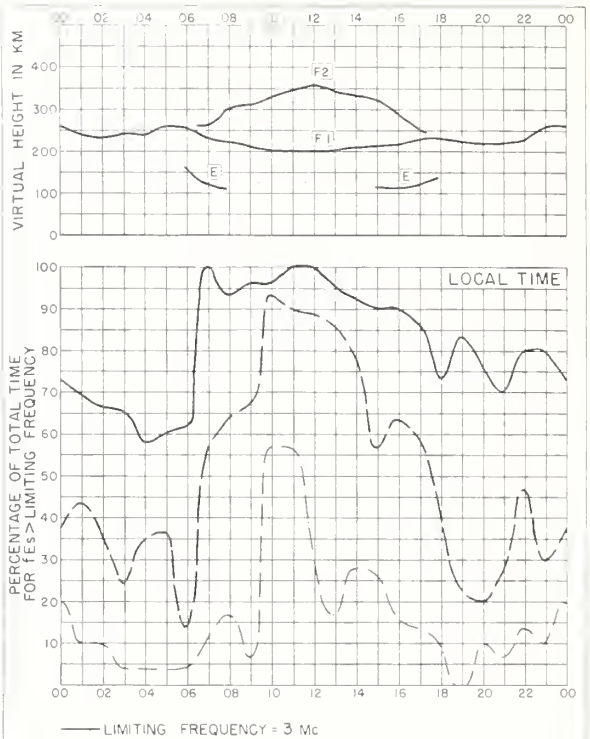


Fig. 38. SINGAPORE, BRITISH MALAYA JUNE 1953

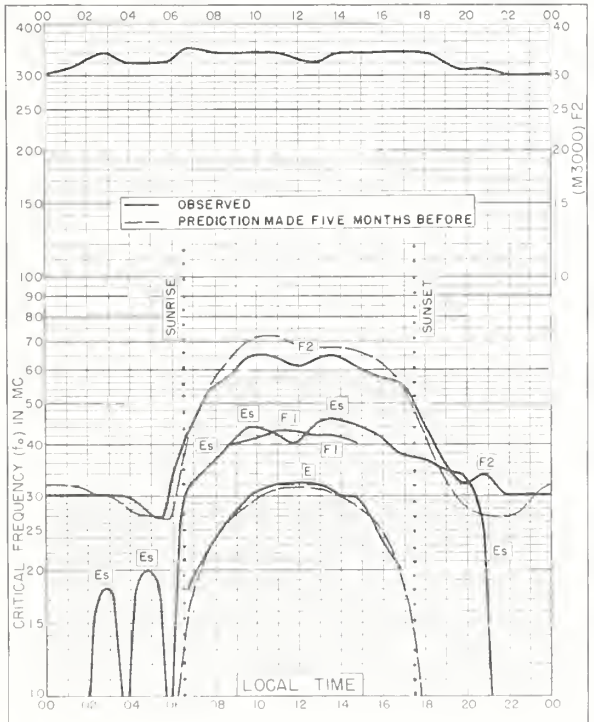


Fig. 39. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E JUNE 1953

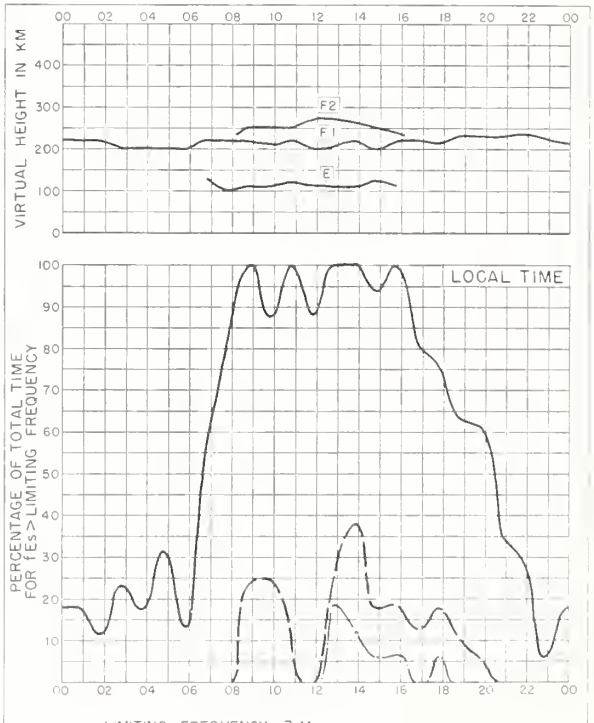


Fig. 40. TOWNSVILLE, AUSTRALIA JUNE 1953

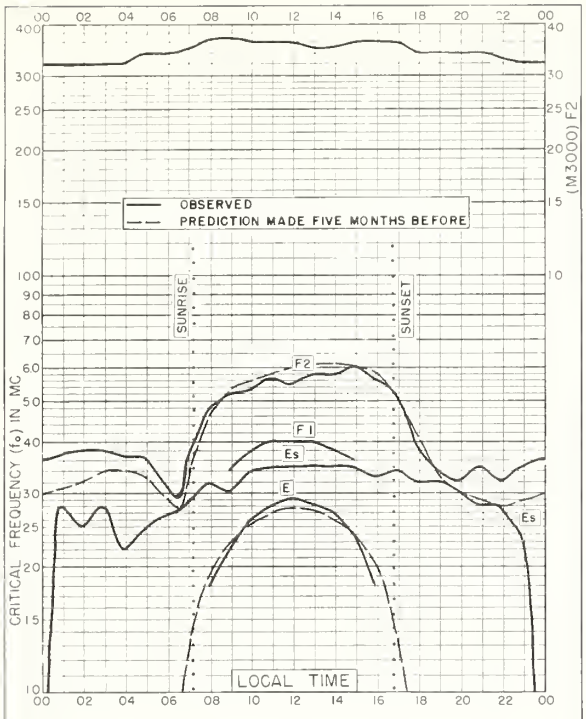


Fig. 41. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JUNE 1953

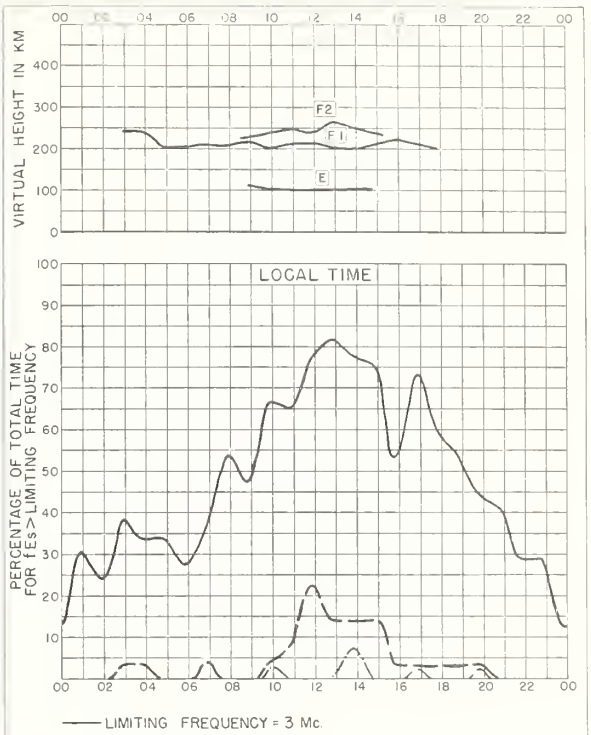


Fig. 42. CANBERRA, AUSTRALIA JUNE 1953

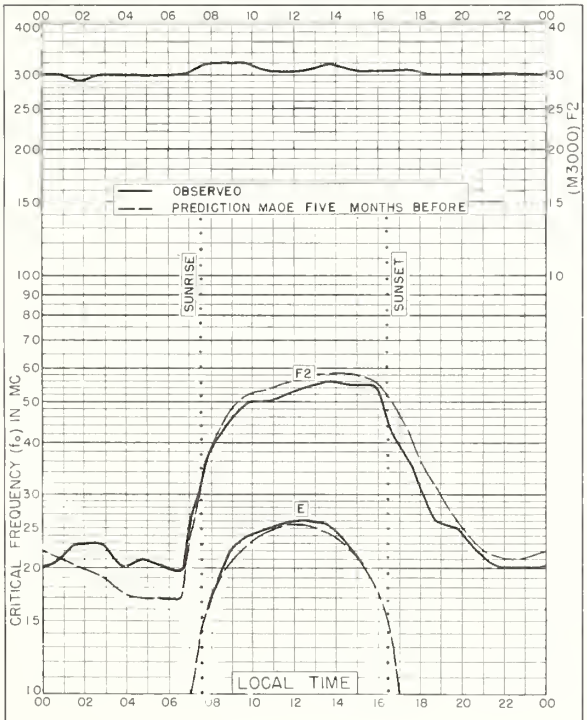


Fig. 43. HOBART, TASMANIA
42.9°S, 147.3°E JUNE 1953

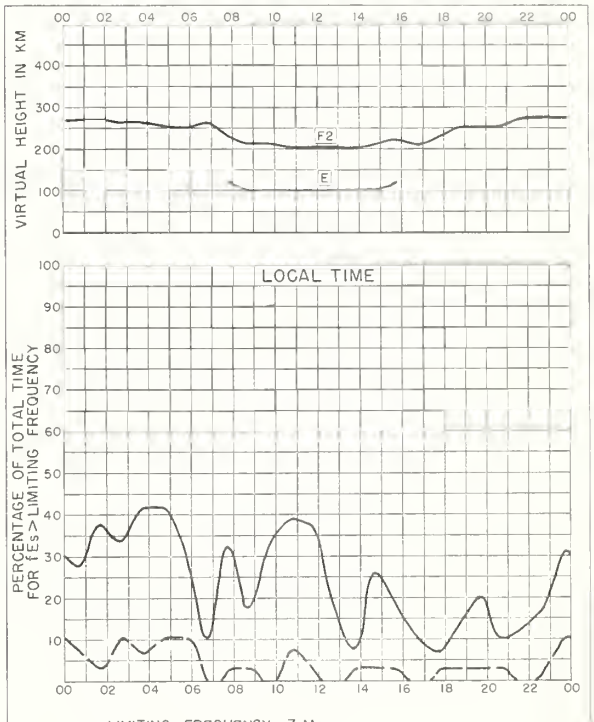


Fig 44 HOBART, TASMANIA JUNE 1953

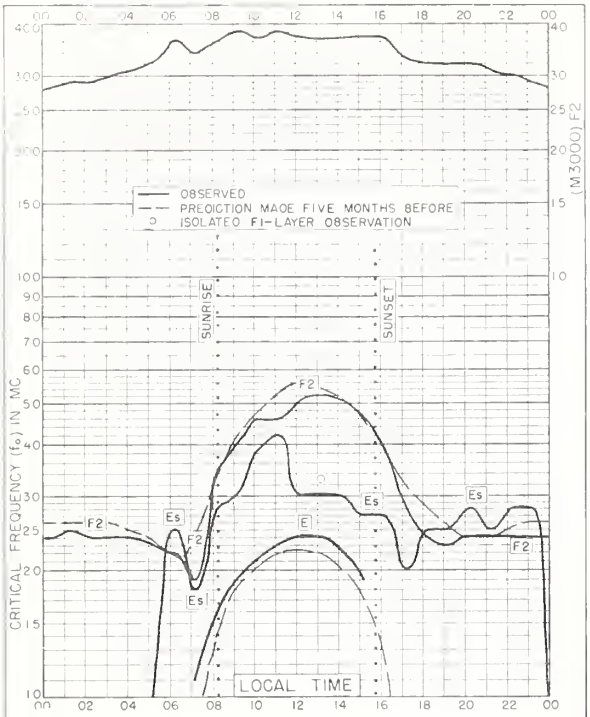


Fig. 45. FALKLAND IS.
51.7° S, 57.8° W
JUNE 1953

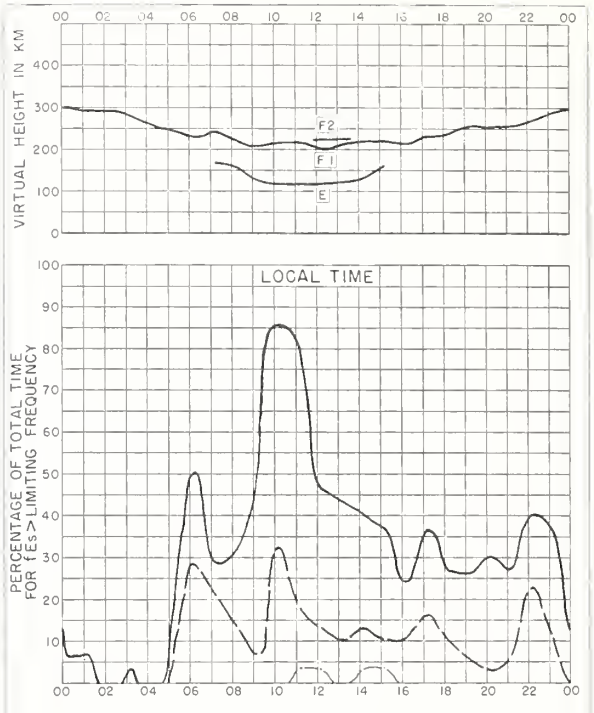


Fig 46. FALKLAND IS.
JUNE 1953

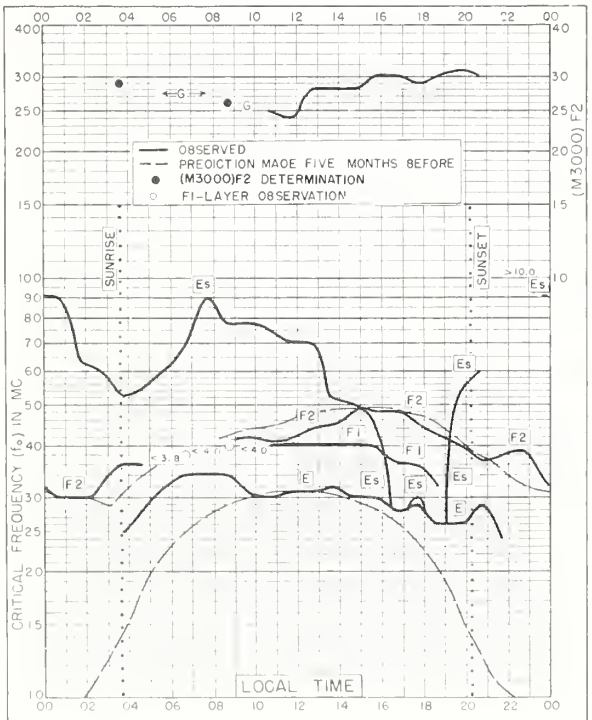


Fig 47. CHURCHILL, CANADA
58.8° N, 94.2° W
MAY 1953

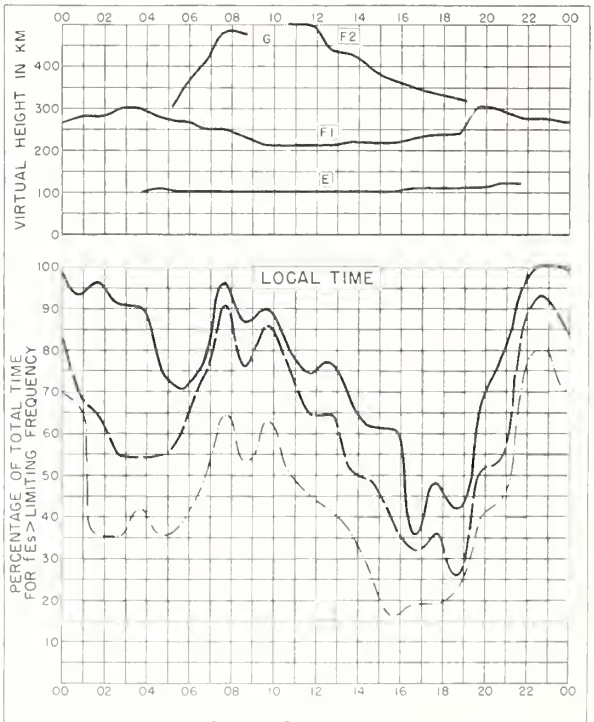


Fig 48. CHURCHILL, CANADA
MAY 1953

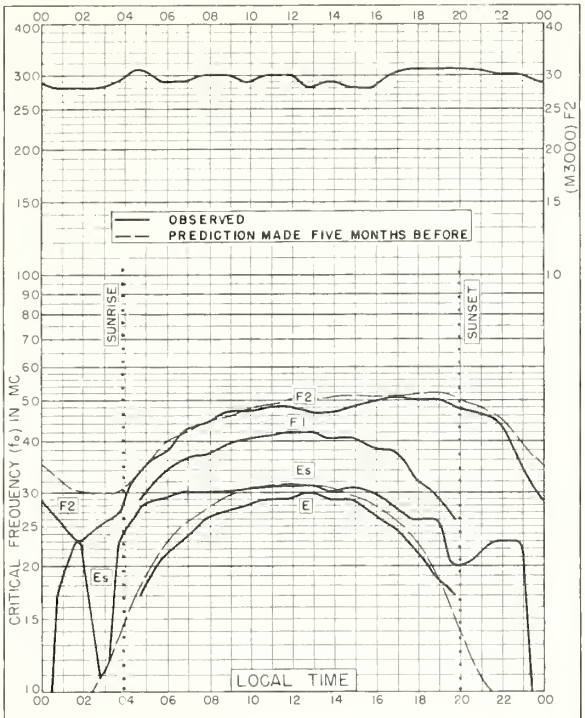
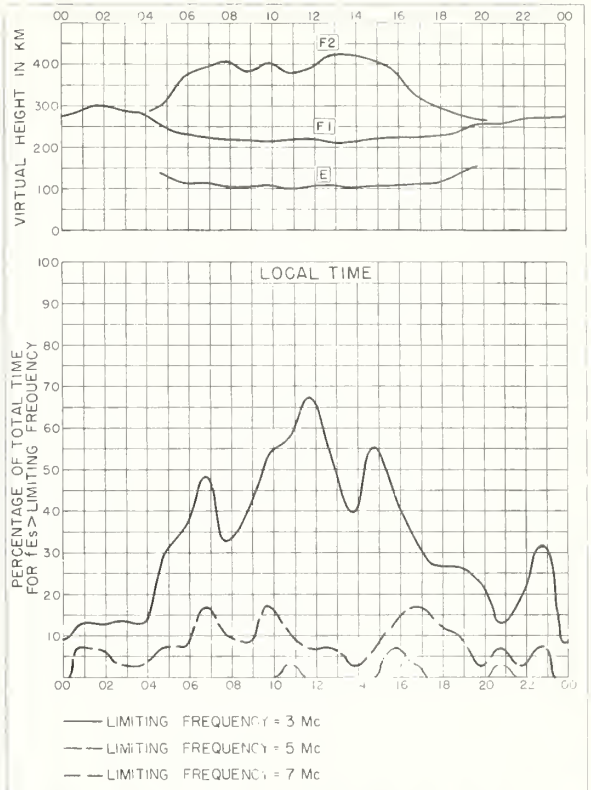


Fig 49. INVERNESS, SCOTLAND
57.4° N, 4.2° W MAY 1953



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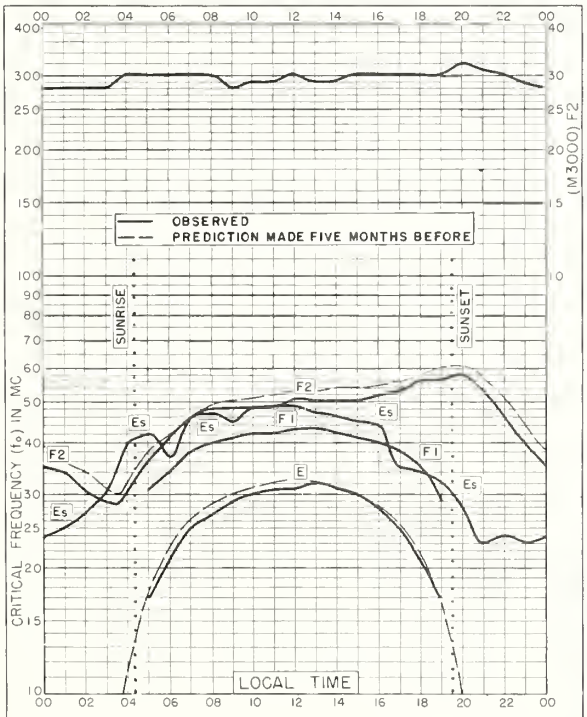

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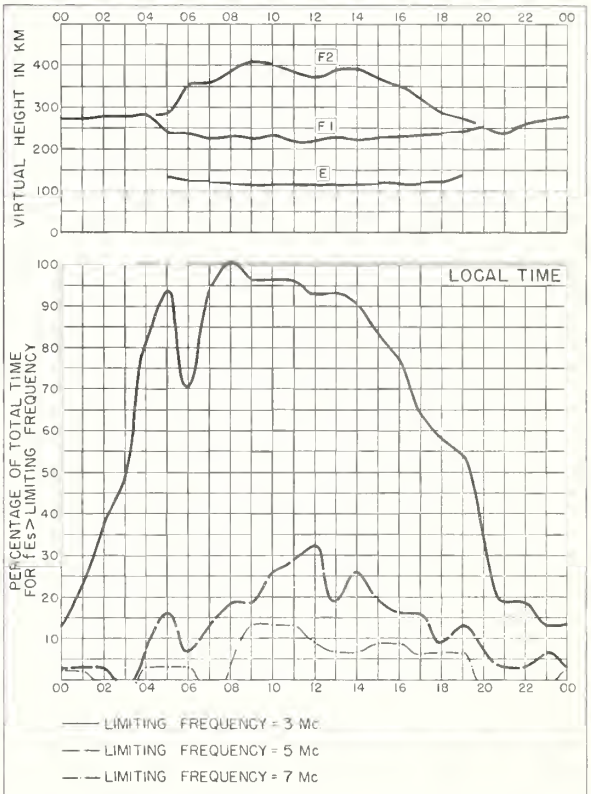

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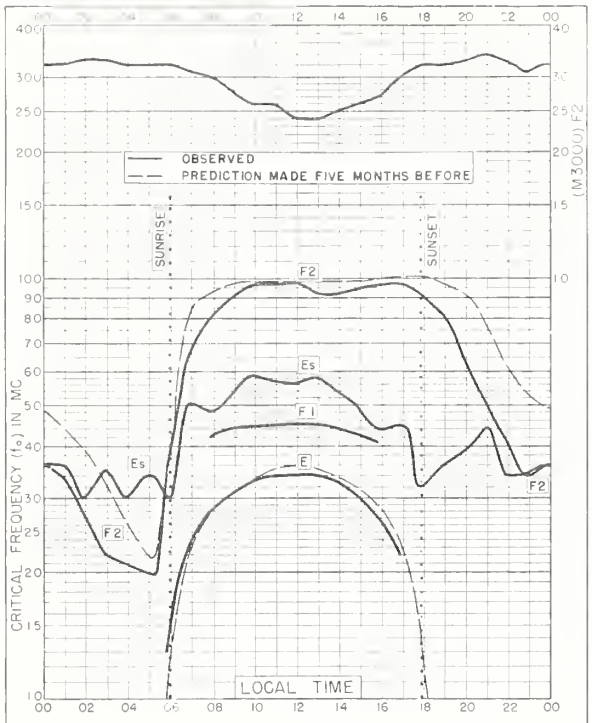

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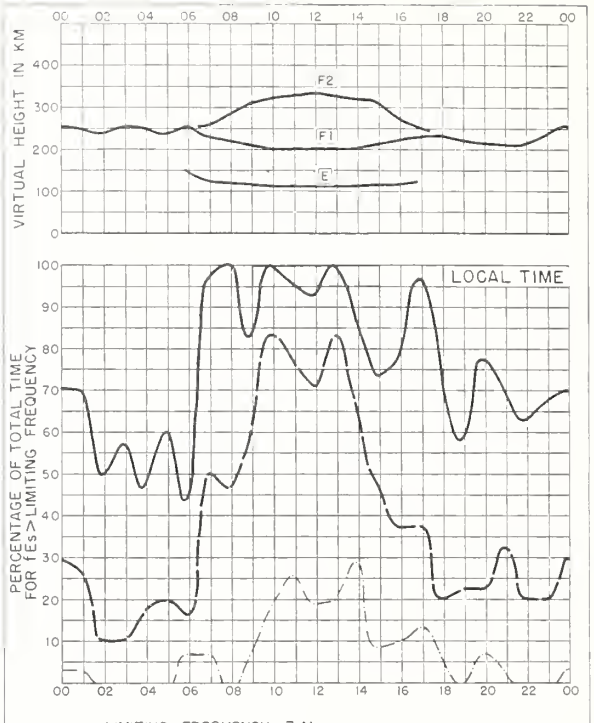
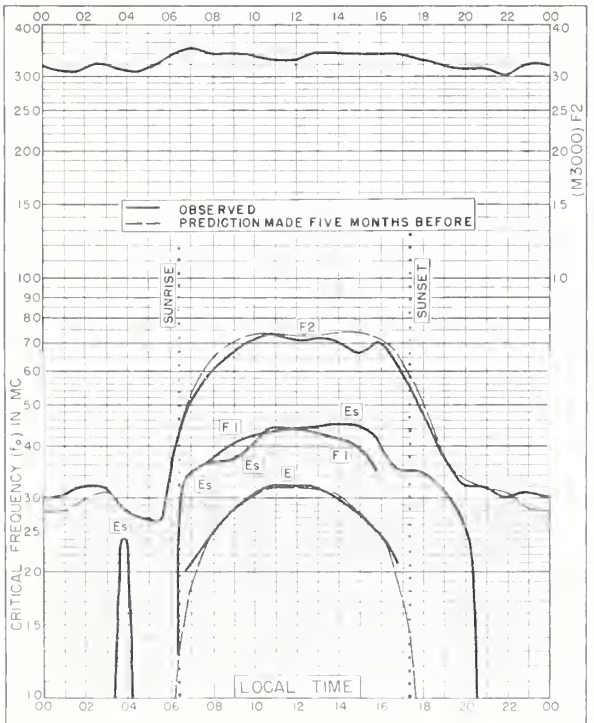


Fig. 54. SINGAPORE, BRITISH MALAYA MAY 1953



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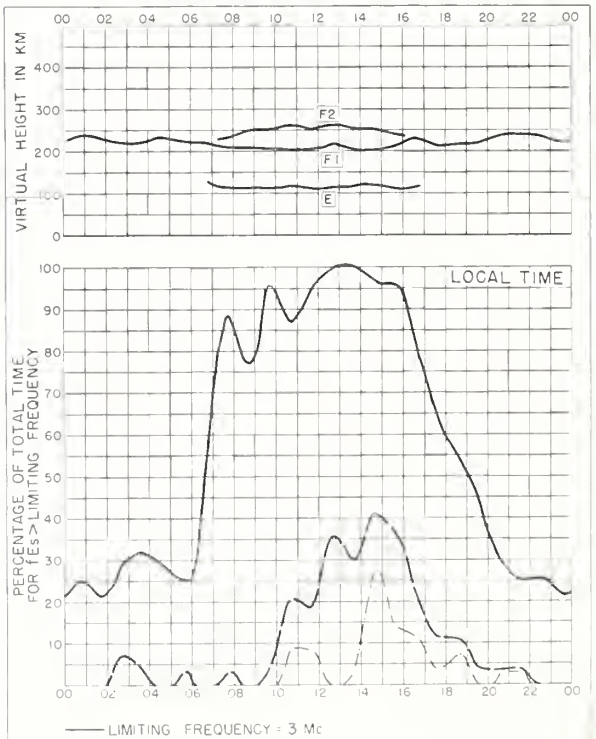

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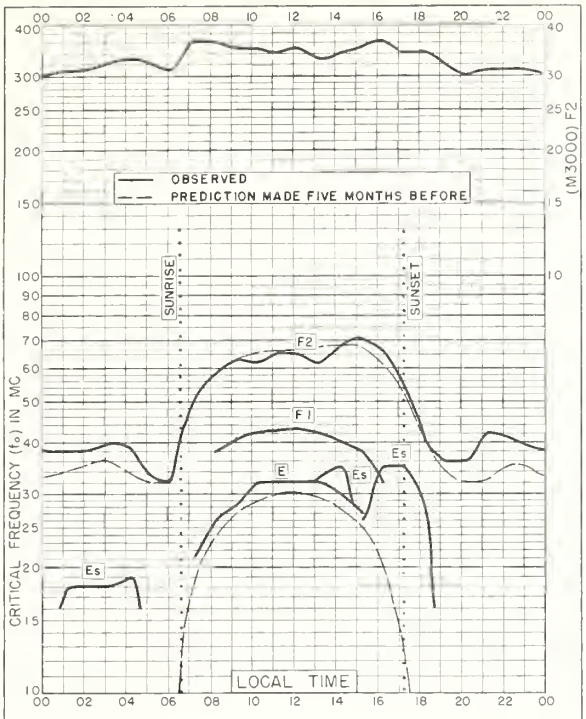

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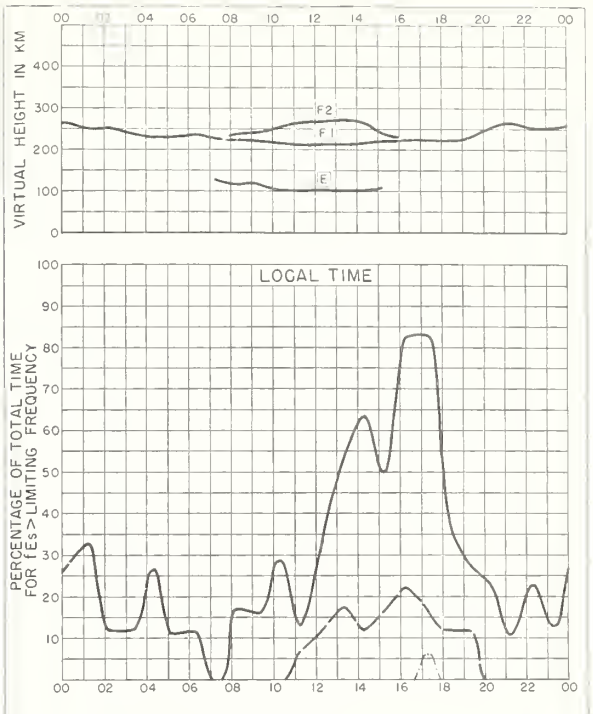

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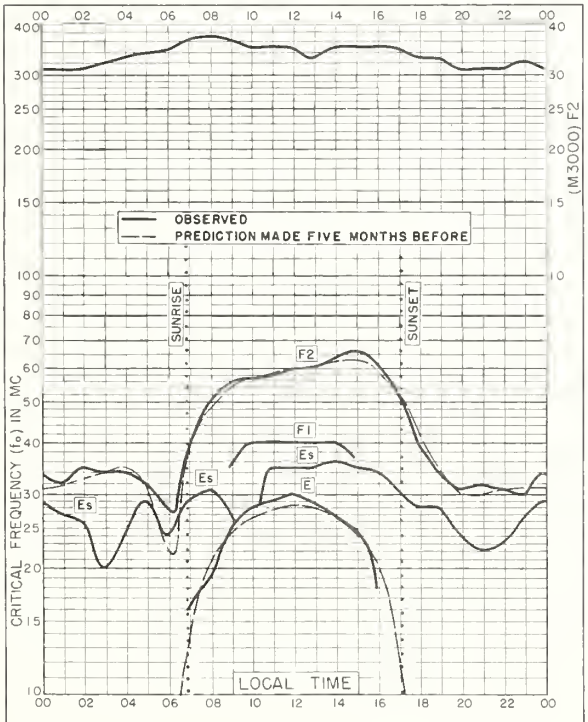

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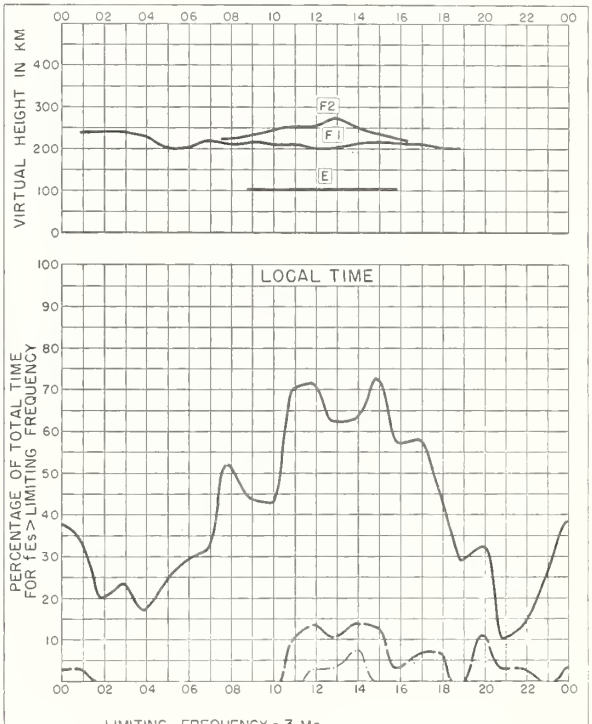
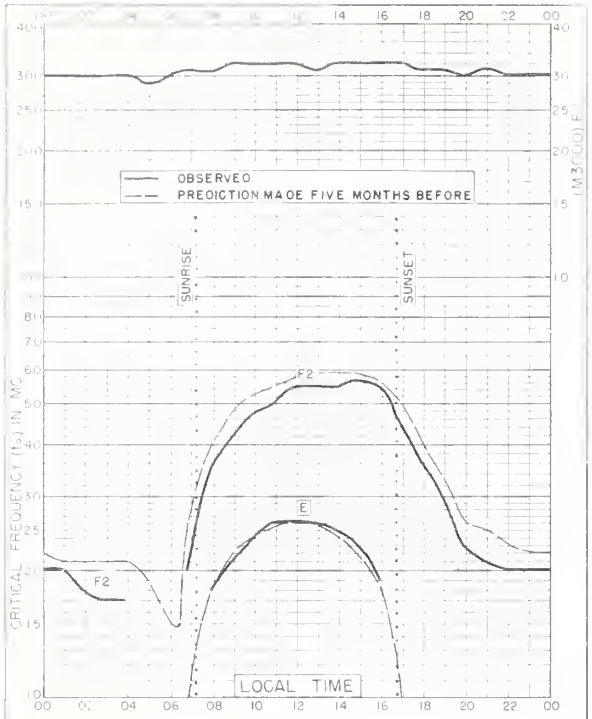


Fig. 60. CANBERRA, AUSTRALIA MAY 1953



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MAY 1953

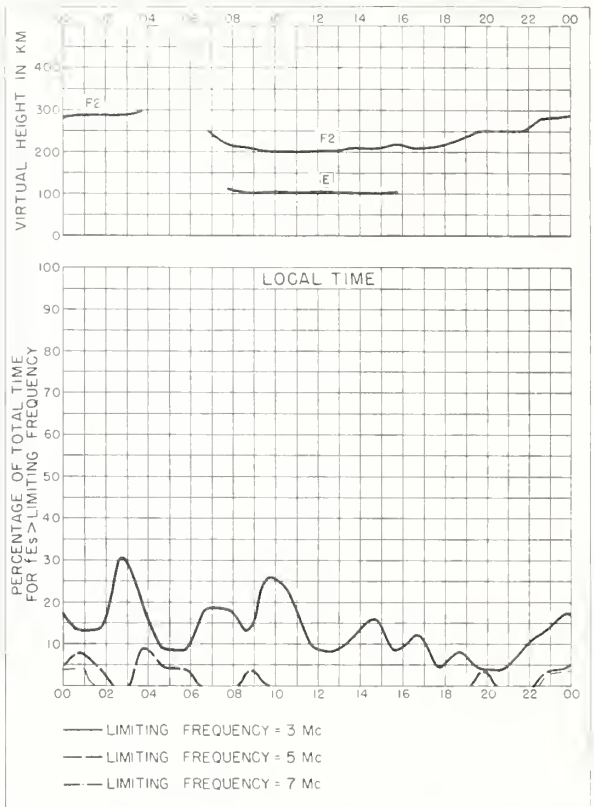
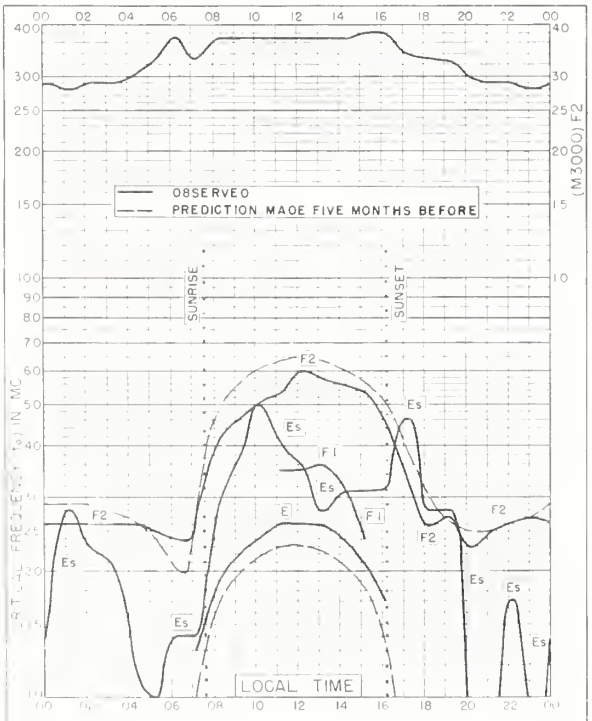


Fig. 62. HOBART, TASMANIA
MAY 1953



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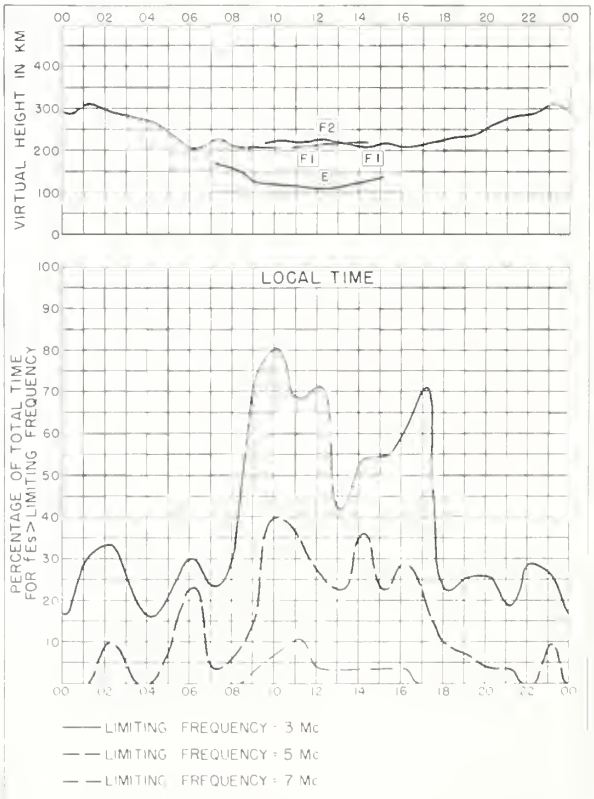

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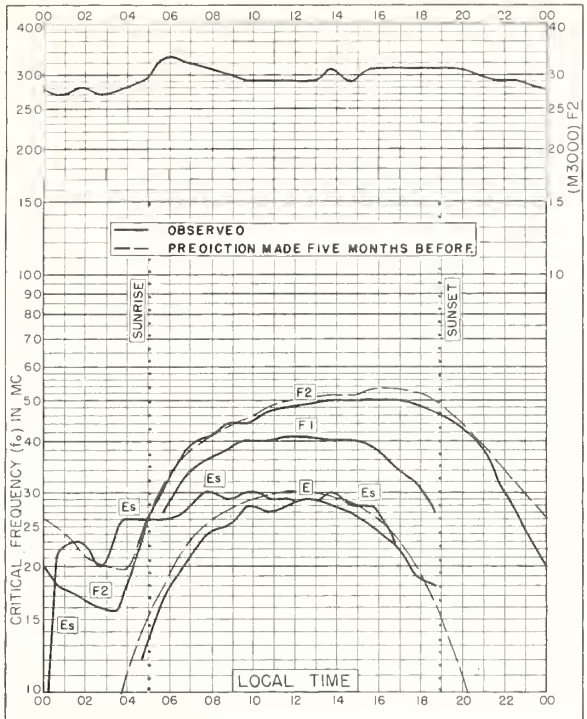

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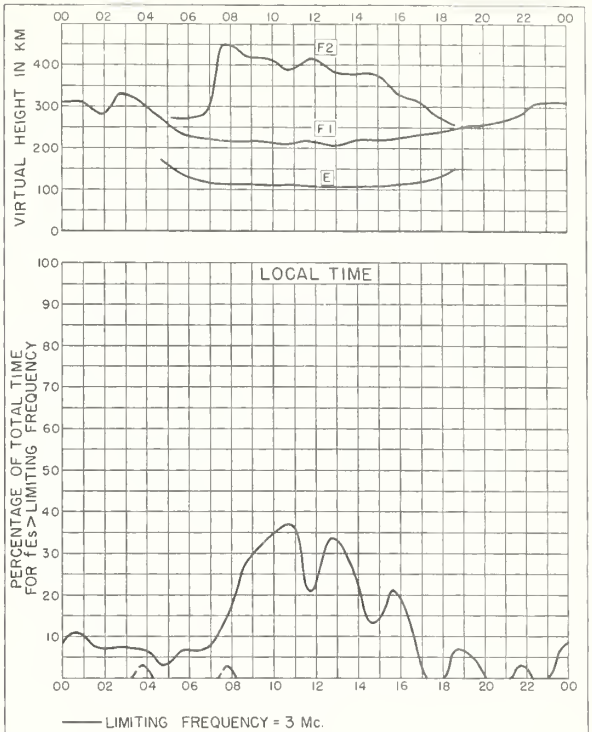

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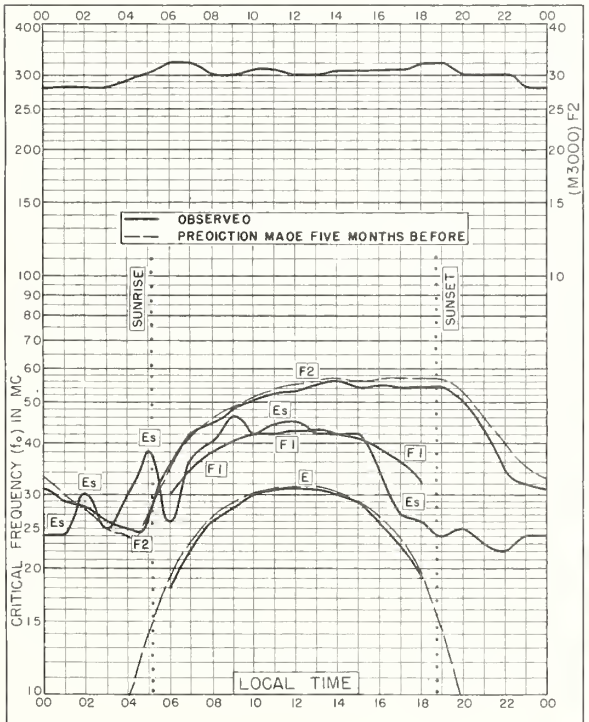

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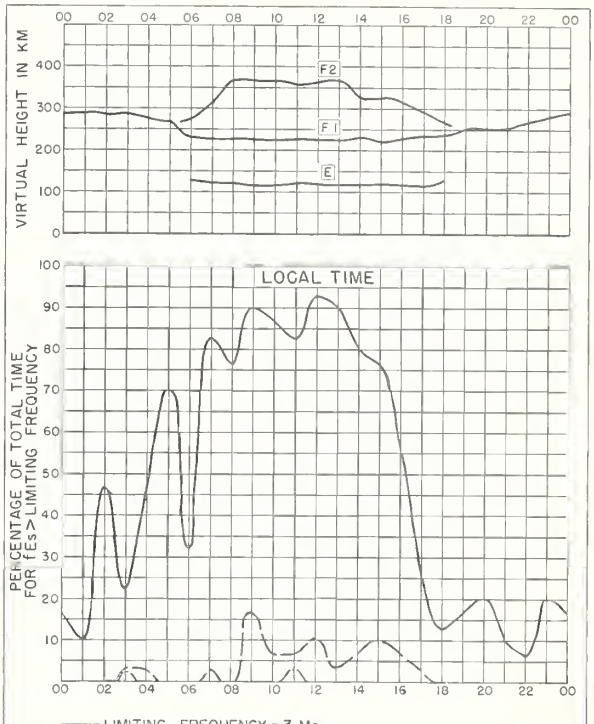

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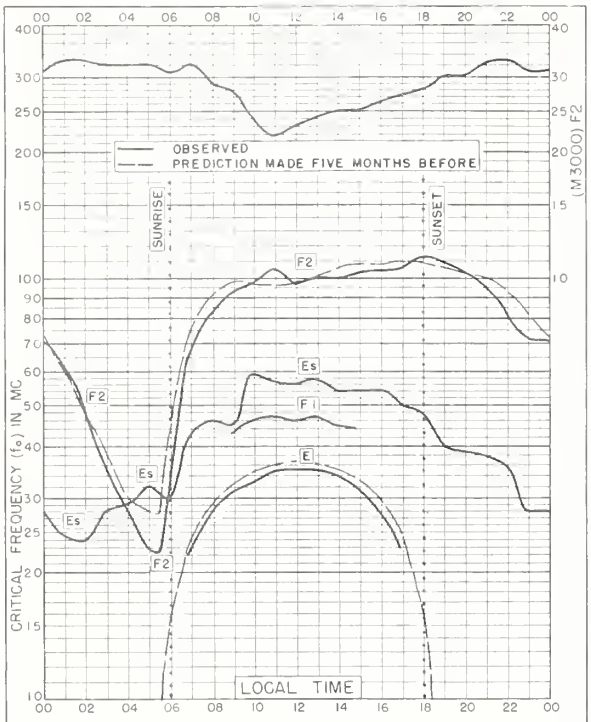

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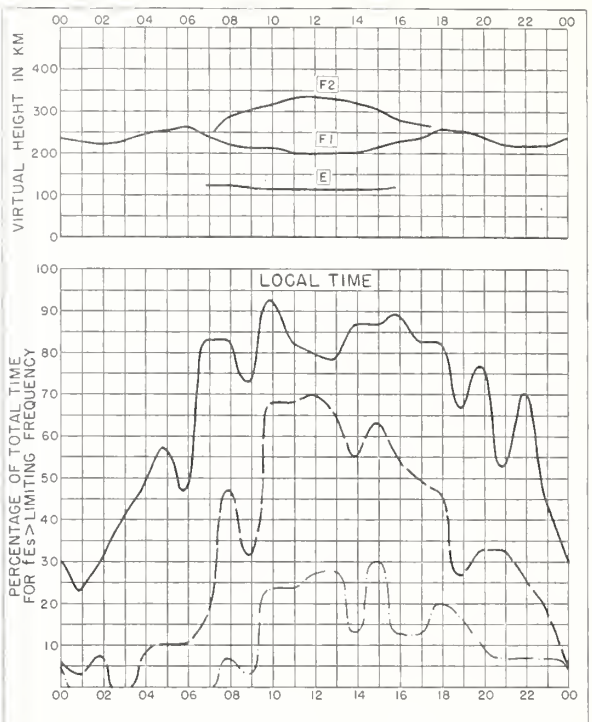

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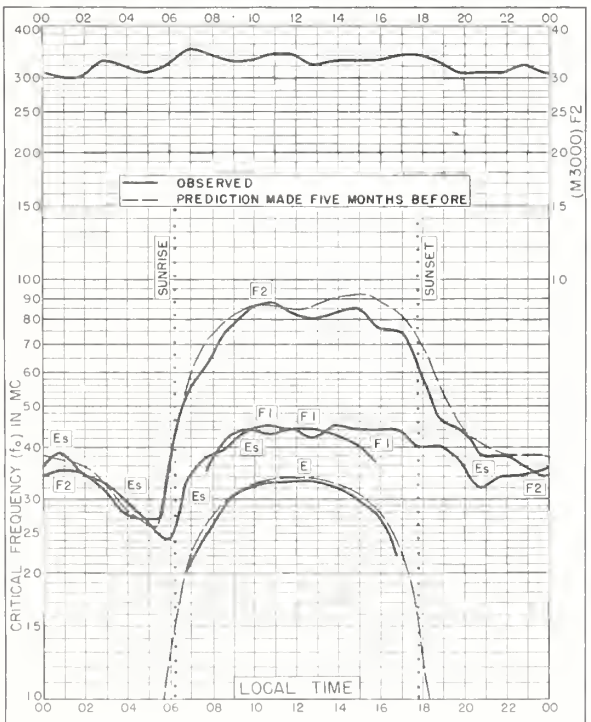

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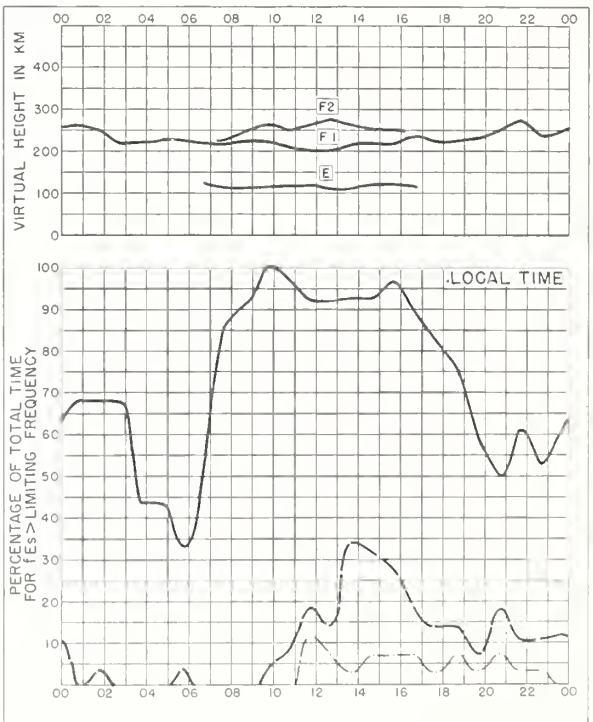

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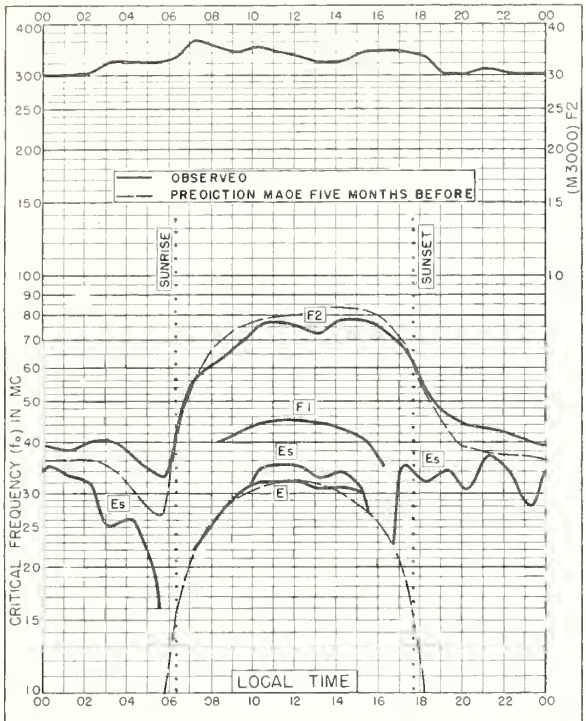

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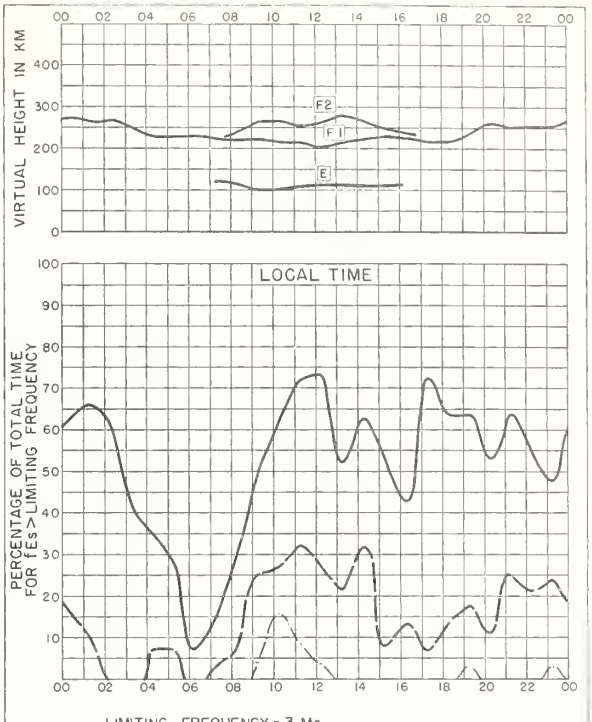

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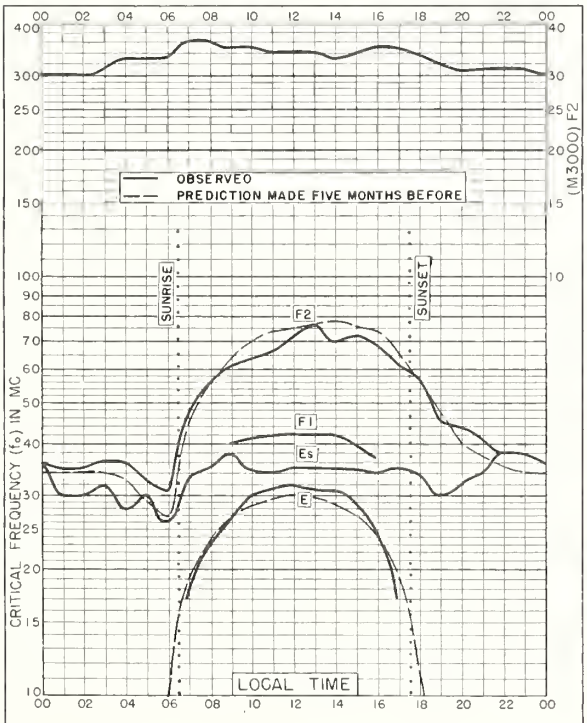

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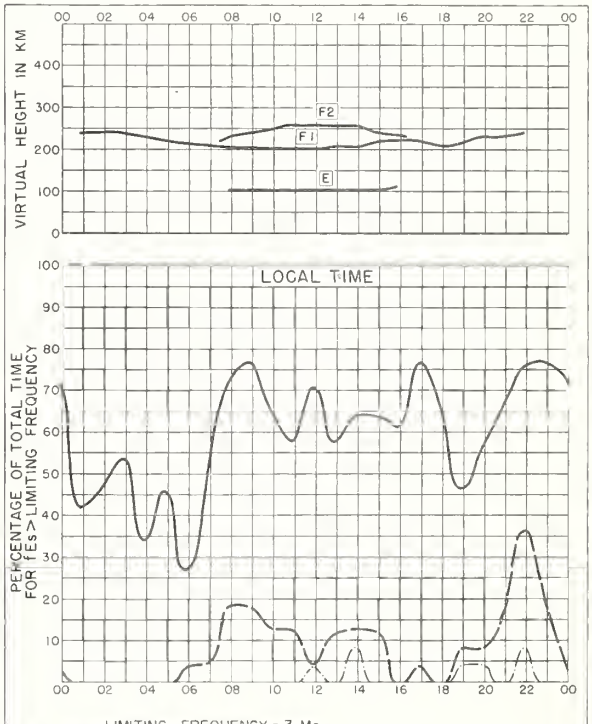

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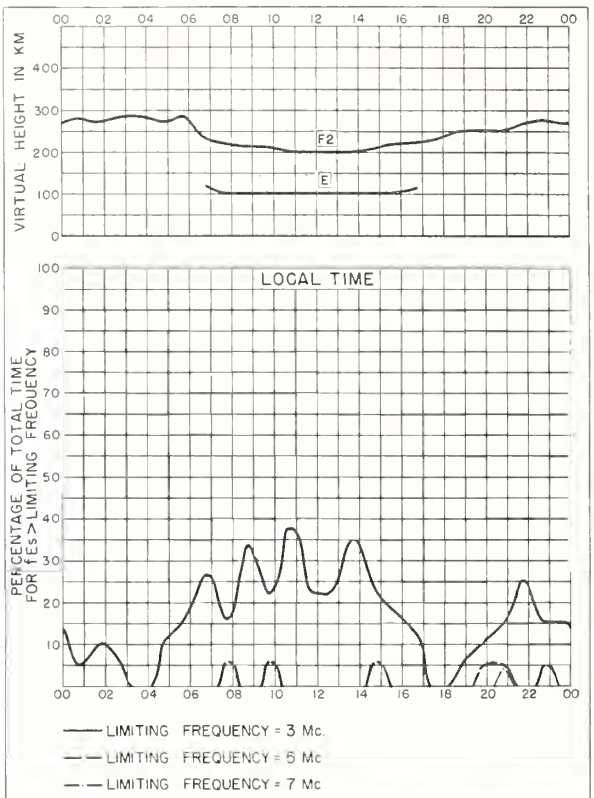

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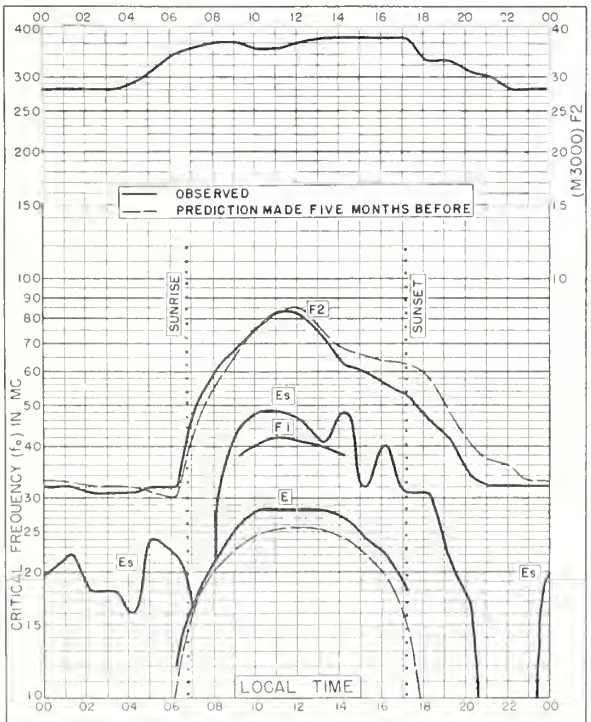

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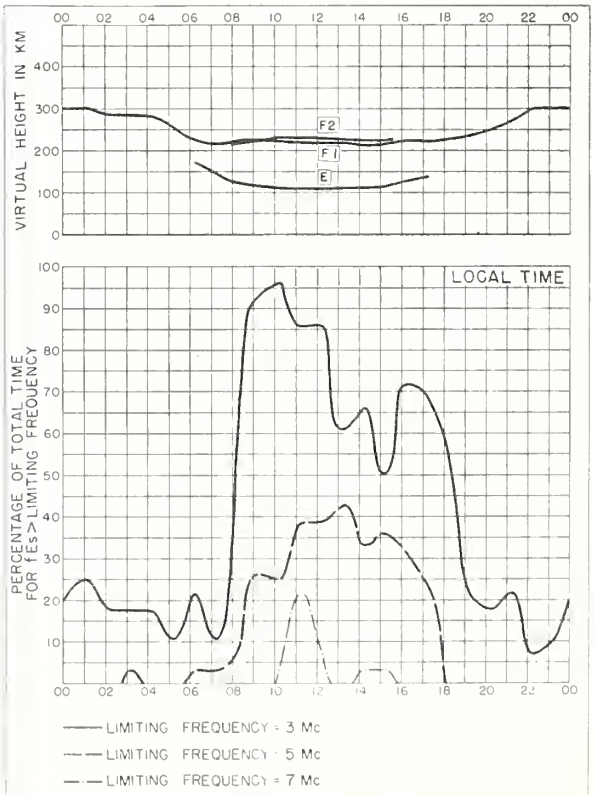
APRIL 1953



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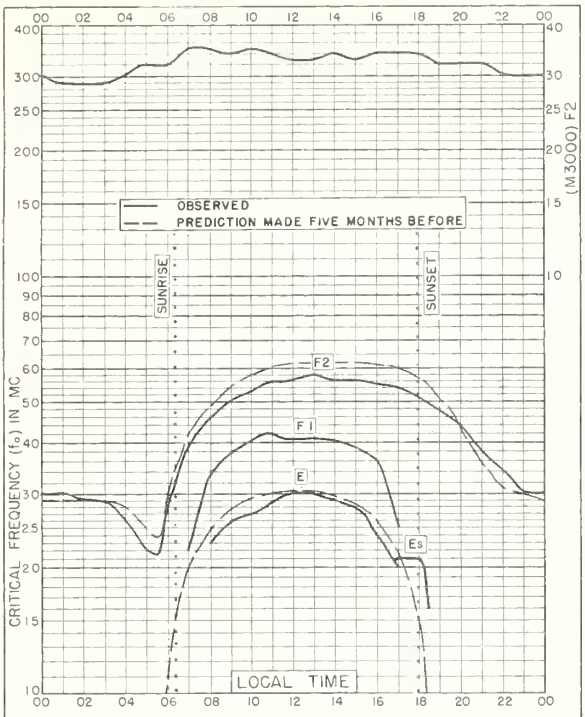

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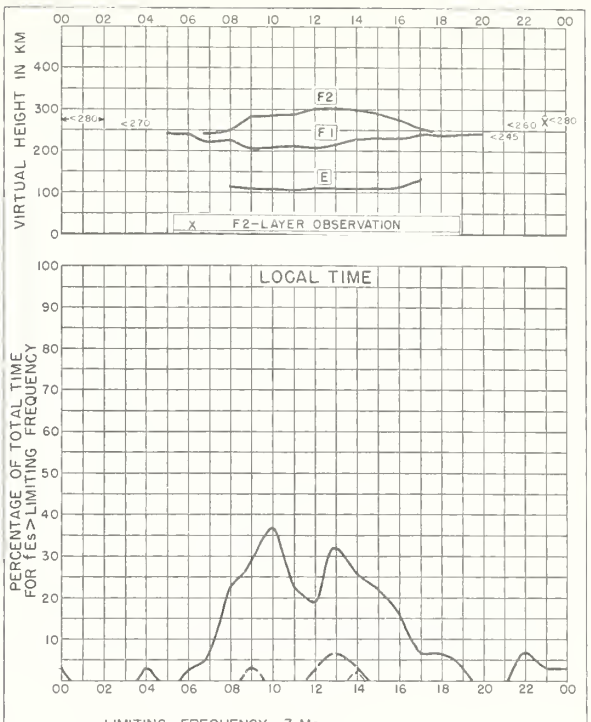

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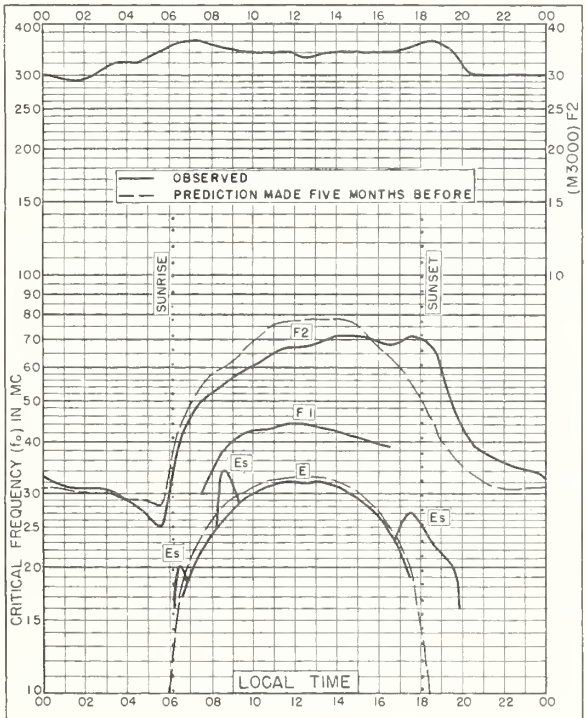

Fig. 83. CASABLANCA, MOROCCO
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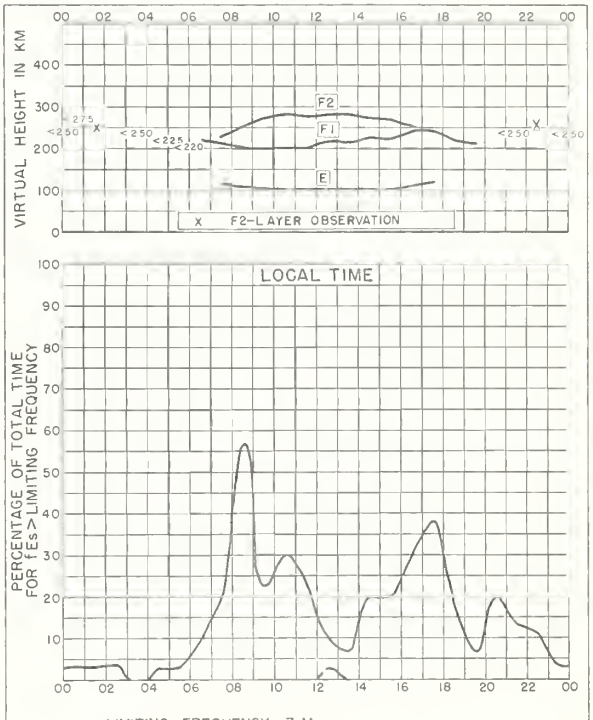

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Fig. 85 KHARTOUM, SUDAN
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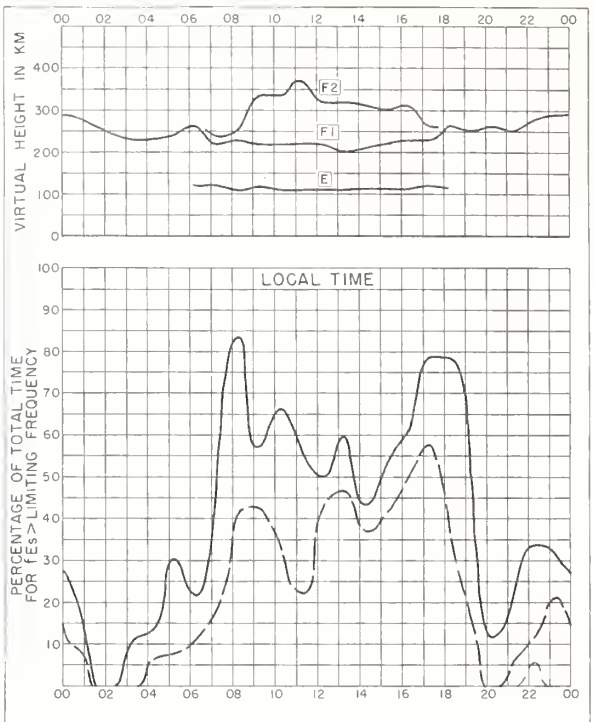
MARCH 1953



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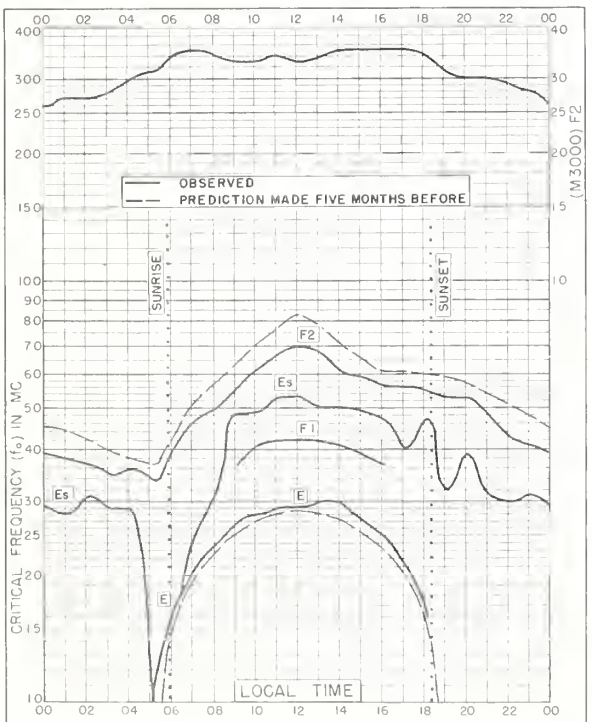

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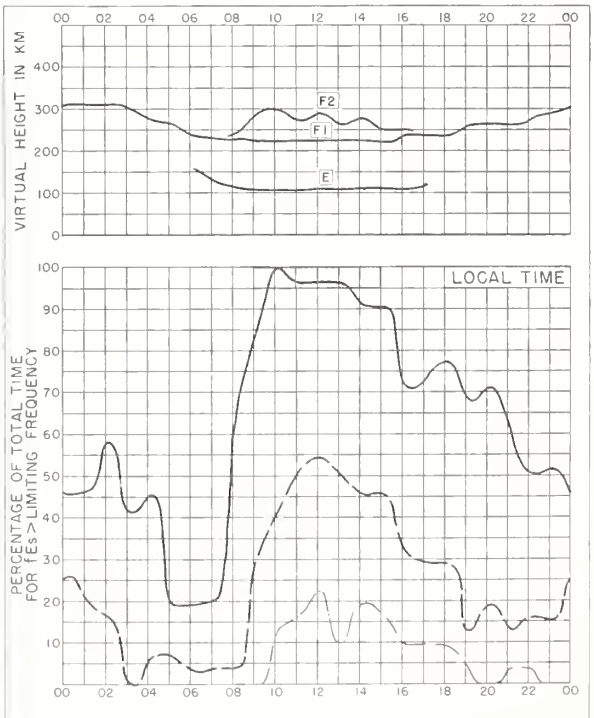

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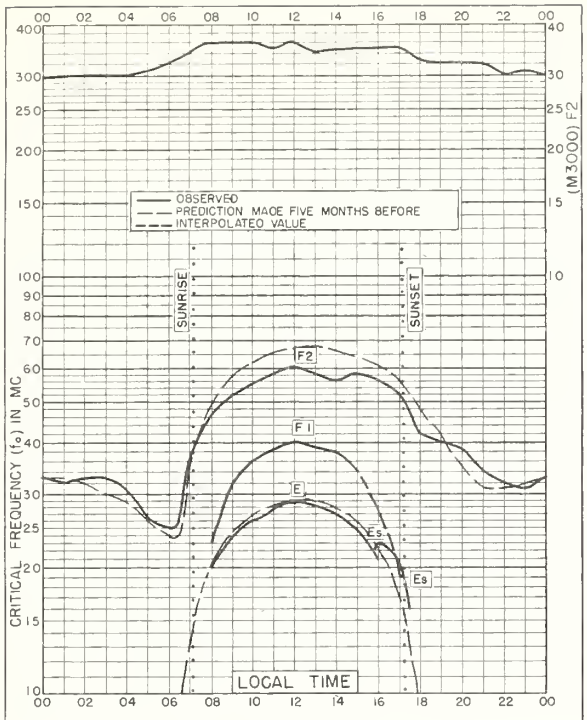

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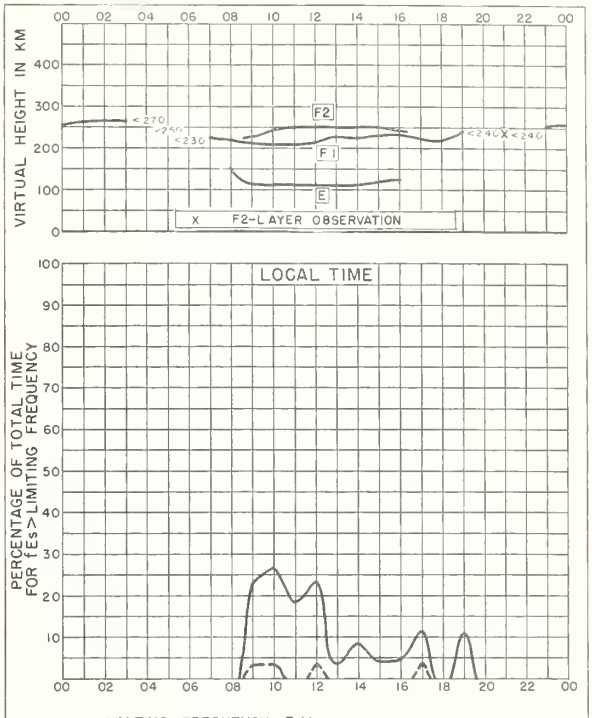

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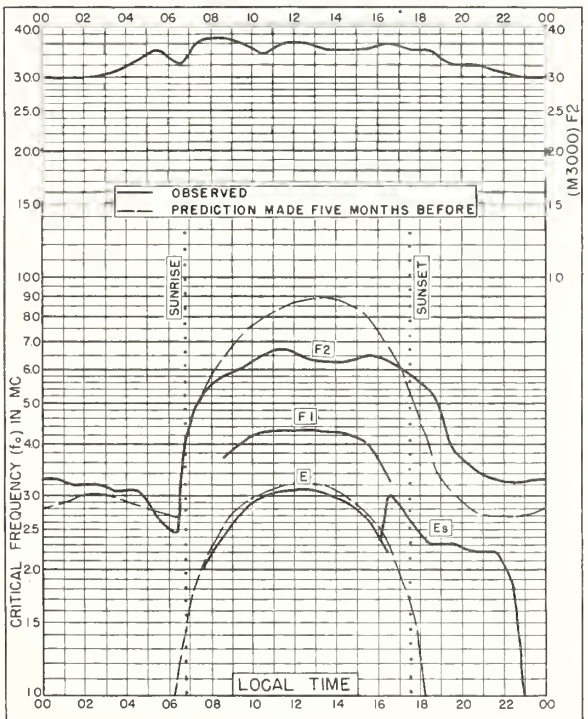

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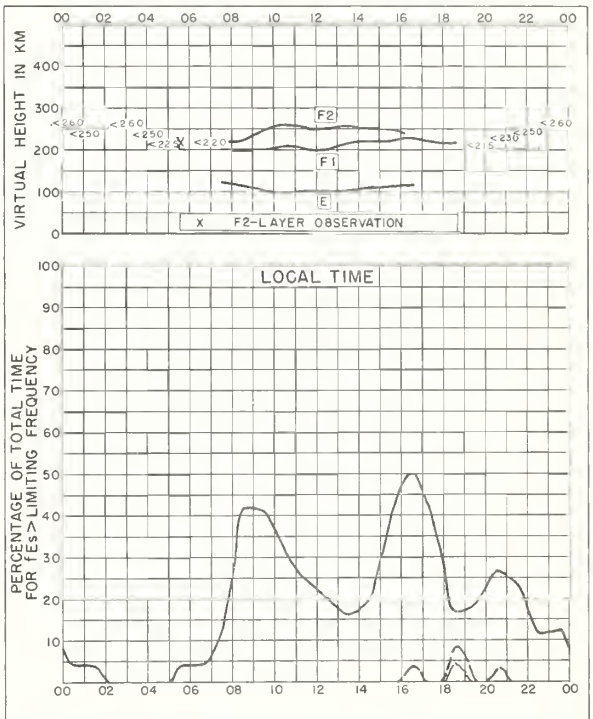

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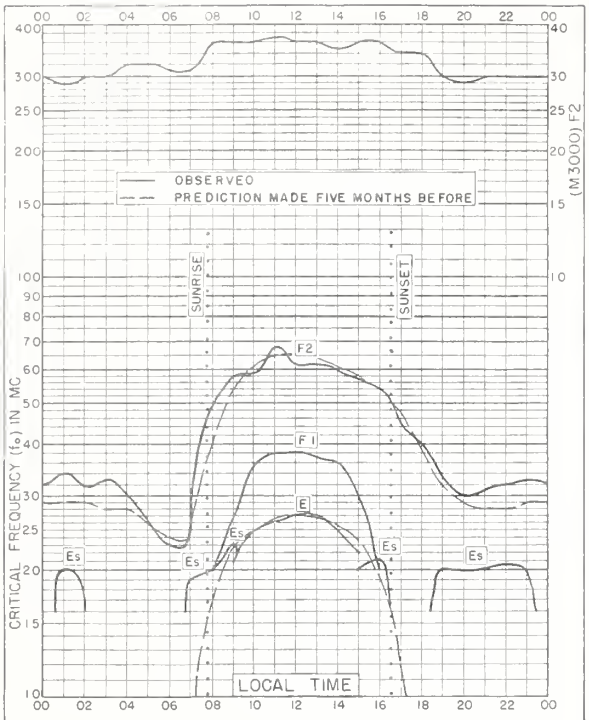

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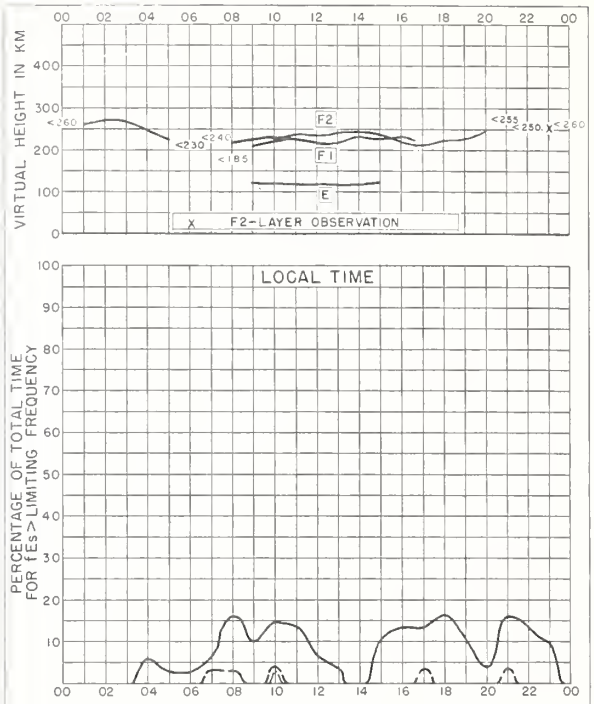

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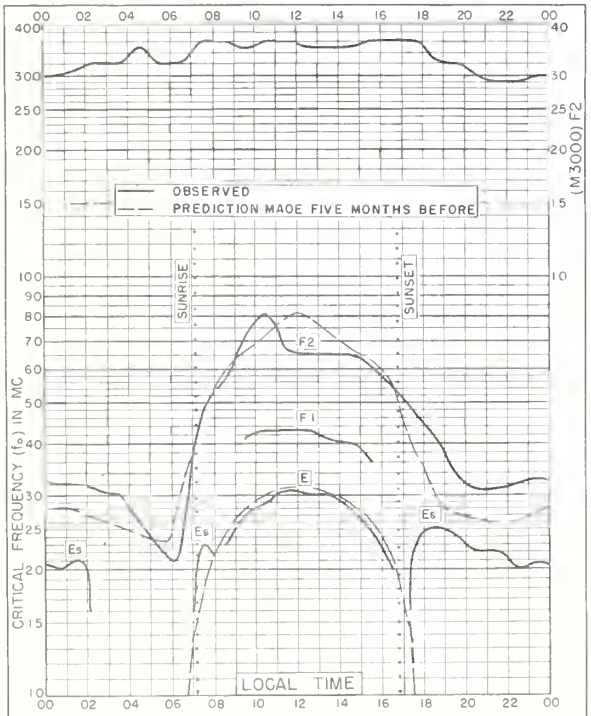

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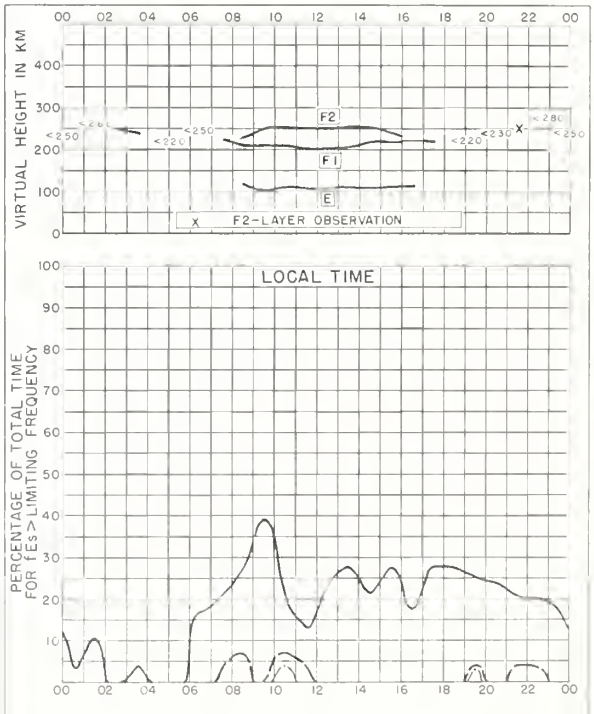

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